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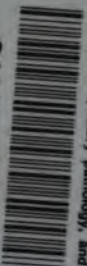
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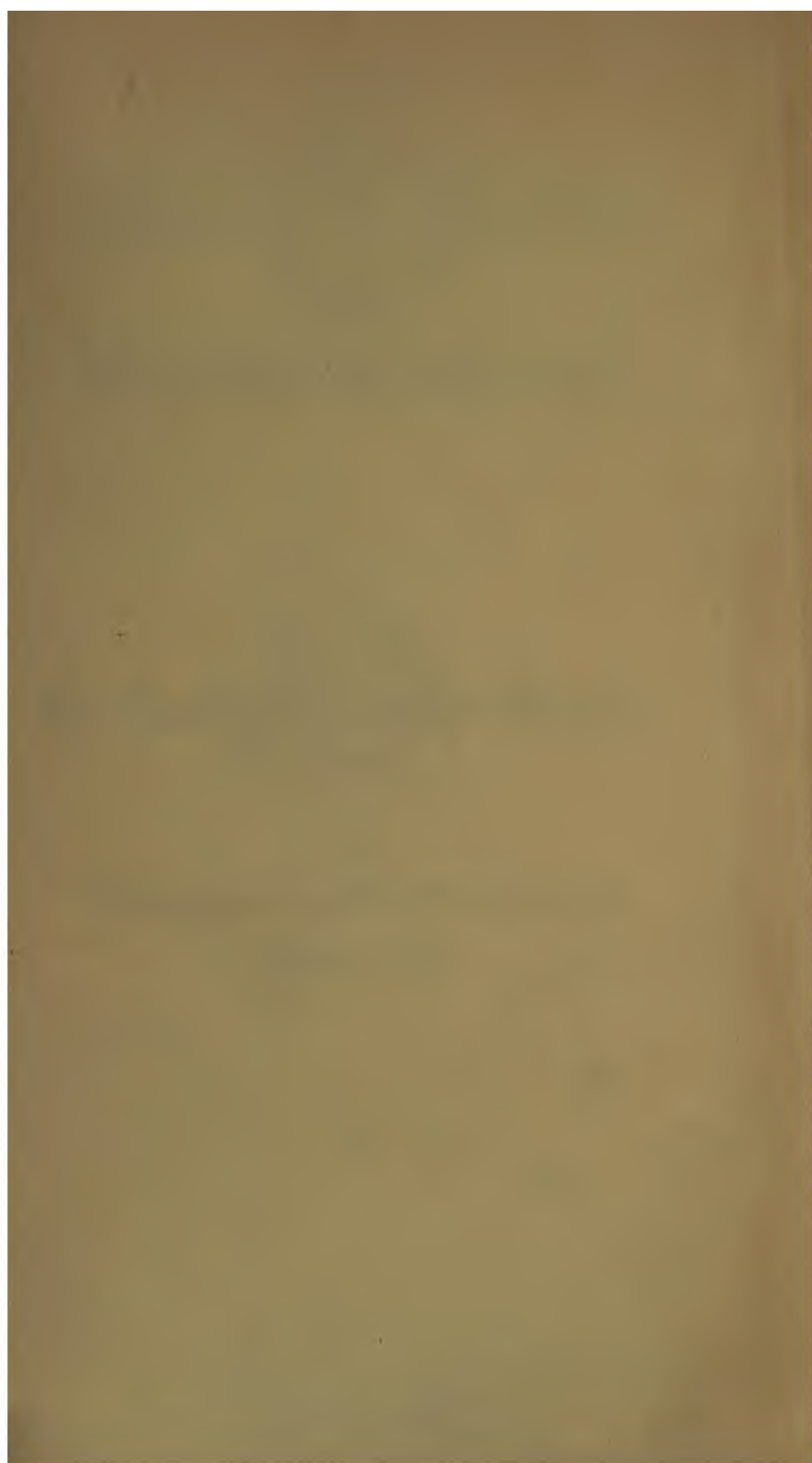


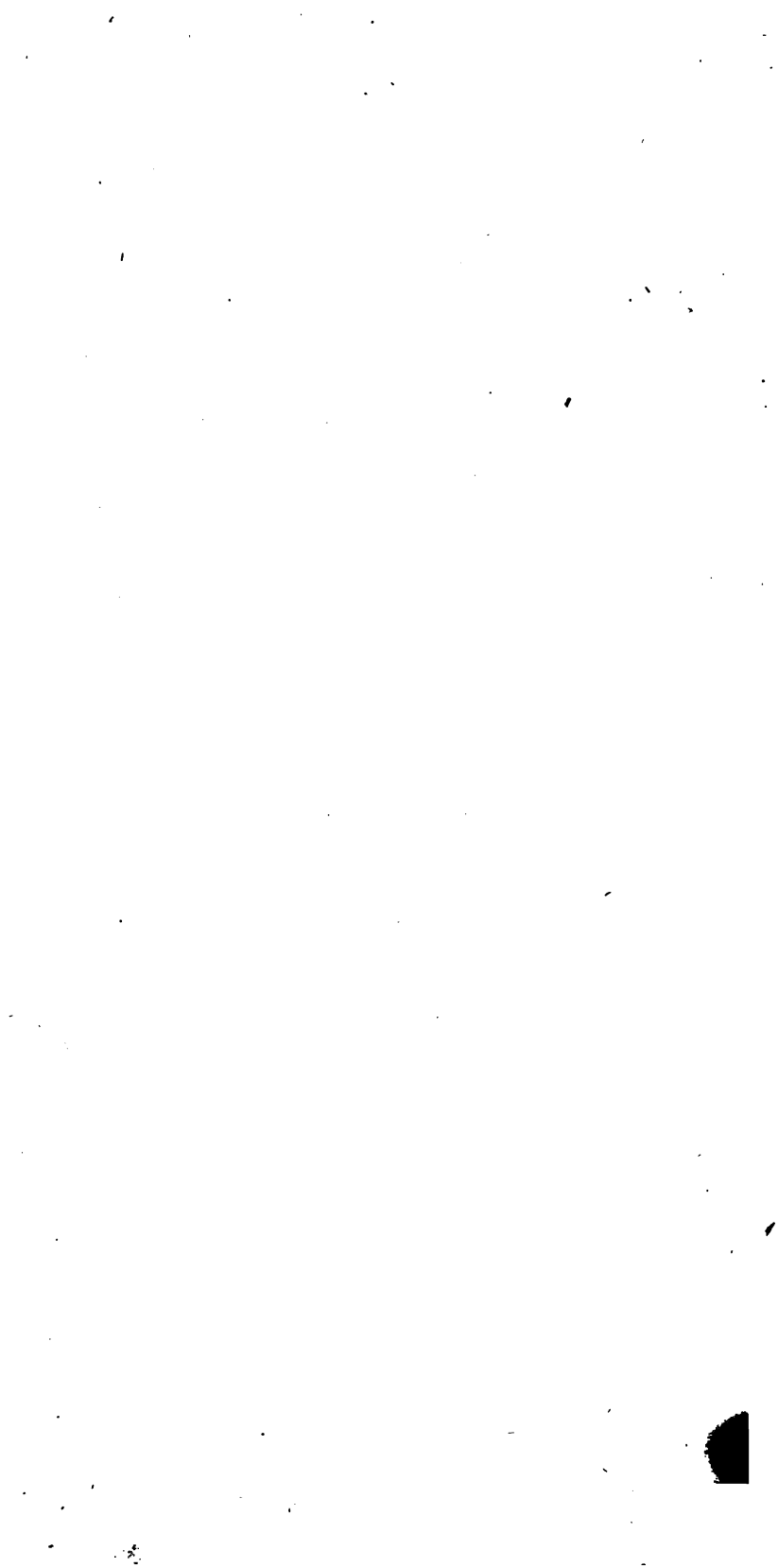
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22







RESEARCHES
ON
PRIMARY PATHOLOGY,
AND THE
ORIGIN AND LAWS OF EPIDEMICS;

IN TWO VOLUMES:

By M. L. KNAPP, M. D.,

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IN RUSSIAN MEDICAL COLLEGE; AUTHOR OF "LECTURES ON THE SCIENCE OF
FIRE INSURANCE," ETC.

VOL. I.

Morborum omnium unum est idem modus est, locus autem differentiam facit.

HIPPOCRATES.

There is but one fever. I use the term diseases in conformity to custom, for properly speaking, disease is as much a unit as fever.

RUSH.



PHILADELPHIA:
PUBLISHED BY THE AUTHOR.

1858.

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1858

TO
THE AMERICAN MEDICAL ASSOCIATION,
UNITED STATES:
THE COLLEGE OF PHYSICIANS,
LONDON:
THE INSTITUTE OF FRANCE,
PARIS:
IN THE HOPE THAT, FOR HUMANITY'S SAKE, COMMISSIONS
MAY BE APPOINTED BY EACH BODY RESPECTIVELY,
TO REPORT ON THE TRUTH OR FALLACY
OF THESE NEW DOCTRINES,
THIS WORK IS RESPECTFULLY INSCRIBED,
BY THE AUTHOR.

P R E F A C E .

THIS Work claims to unfold the Primary Pathology of Disease. It claims to set forth the *vera causa* of not only Epidemic Cholera, but of every other epidemic form of disease, yea, of all sporadic disease. It contains New Doctrines, then, or embodies what is believed to be a substantial progress made in medical science; a philosophy that explains, on inductive principles, the Origin and Laws of Epidemics—of all forms of disease, indeed—giving the *rationale* thereof. No claim is made to the discovery of new principles; only a new application of known principles, revealed through the more modern progressive sciences, Physiology and Organic Chemistry; principles or truths which our forefathers in Physic were unacquainted with, and therefore could not apply either in explanation of the pathology or in elucidation of the rational treatment of disease.

It is rendered very evident then, by the mere announcement of the character of the work, that the broad sarcasm levelled at medical Authors, as well as the Profession, by the renowned Dr. Mead, in his advice as to the course for achieving successful authorship, has not been endorsed by the Author, nor the advice followed, viz.: "Choose the subject by which you think you will get most money, or that which will bring you the most general business, as fevers, small-pox, &c., for in those some must always live, some die, 'tis a hard matter to tell when right, or when wrong. But above all things, take particular care, let the subject be what it will, that the words be well chosen, so as to make an elegant and florid speech; since you have ten to one who mind the language more than the ideas. I would advise you, whatever the subject be you write upon, rather to write, so that no man can make anything of it, so as neither to make downright sense or nonsense; because, thus, none of the profession can well lay hold of you for any particular part; or, if they should, there is room for you to defend it, being as easy to be understood one way as the other. This is that method I commend, which Mr. Locke observes is possible enough, viz.: to write a tolerable discourse of well-chosen and well-joined words, which, nevertheless makes not up any real sense or intelligible meaning. Thus, suppose you were to

write of sleep; now if you write in this manner it is ten to one it will make all who read it fall a-sleep, consequently, what better can be said on the subject:” but rather by this work and the method of the Author, science is held to be progressive, and the Profession is especially complimented as worthy of being treated to great truths, and capable of discerning them.

Nevertheless, though the new doctrines maintained may be clear and truthful, there is no probability of their being received and endorsed by acclamation. Time is the arbiter of all things, all newly-presented theories, doctrines, and innovations. To make a record is the first thing. All great truths have first to be announced. An argument or theory is indispensable. It has been objected to the author’s views that the whole matter is but a theory—“Theory run riot.” The same may be, and was objected to the theory of the revolution of the earth; no man can ever appreciate the fact by his external senses. The phenomena, however, in both instances are explained by the respective theory of each, thus gaining the assent of the reason, the interior sense. The old theory of the revolution of the heavenly bodies round the earth, we know, when we reason on the subject, to be impossible. The same of the old theories of disease. Still, whoever is bold enough to speak, write, and adopt truth for truth’s sake, must expect little present reward. So satisfied is the Author of the truth of his deductions, that he hesitates not to adopt the enthusiastic language Kepler used in announcing his discoveries, see *Harmonices Mundi*, proem to 5th book, *De Motibus Planetarum*. “Eighteen months ago, I saw the first ray of light; three months since I saw the day; a few days ago I saw the sun himself, of most admirable beauty. Nothing can restrain me; I yield to the sacred frenzy. I dare ingenuously to confess, that I have stolen the golden vessels of the Egyptians, (alluding to the ideas of Ptolemy on the same subject,) and will build of them a tabernacle to my God. If you pardon me I rejoice; if you reproach me I can endure it; the die is thrown, I write a book to be read. whether by the present or future ages, it matters not. It can wait for a reader a century, if God himself waited six thousand years for an observer of his works.” If this impulsive language be justifiable in heralding the truths of Natural Philosophy, how much more so in announcing new truths in the humanitarian Science of Medicine.

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DISCOVERY
OF THE
CAUSE, NATURE, CURE AND PREVENTION
OF
EPIDEMIC CHOLERA.

BY M. L. KNAPP, M. D.,

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DISCOVERY
OF THE
CAUSE. NATURE, CURE AND PREVENTION
OF
EPIDEMIC CHOLERA.

TAKING a survey of the human family inhabiting this earth, it is the work of but a moment only, to examine the several agents in the material world that support them in life and maintain them in health: food and drink, atmospheric air, heat, light and electricity, are all.

Medium, or moderate impressions of these agents necessary to life, or vital stimulants, maintain a physiological state, or the condition of comfort, buoyancy and happiness, called health. Any other than medium, or moderate impressions, either in force or quality, especially if long continued, induce a pathological state, or a condition of discomfort and tendency to death, called disease. It is to be observed, however, that a considerable variation is compatible with health, especially if neither sudden nor long continued. Man is most comfortable, for instance, in a temperature of about 65 degrees F., but he can withstand 100 degrees if not long continued, or 20 degrees below zero. So of all the vital stimulants, moderation is the law of health. But the earth must wheel its stated course around the sun, producing the phenomena of the seasons; hence, man must be subjected to extreme impressions in summer and winter, and the vegetable kingdom to droughts, frosts and blights, abridging the vital stimulus of food. These are the laws of Nature, and in them are involved the causes of disease. No other external influences are known, or acknowledged to be present in the

physical world, by which the health of human beings can be disturbed, and cannot be admitted without hypothesis.

Discarding all the hypothetical causes of Cholera that may have been offered, such as contagion; infection; epidemic influence; an imaginary entity, possessing the quality of portability; astral influence; malaria, or miasmata, (whether vegetable fungi, or animalculæ;) teluric emanations; supernatural agency, called the displeasure of Providence, or the vengeance of God; I look only to known, natural causes of disease, or extreme impressions of the natural vital stimuli, for the cause of Cholera, and a rational explanation of all the phenomena it presents.

1. Deviations from a healthful standard, in the impression of the vital stimulus of food, or alimentation, constitute one class of causes of disease.

On this proposition I remark, that the natural law, governing man as an *omnivorous* animal, is as imperious as that which has ruled the ox, *herbivorous*, or the tiger *carnivorous*. Infractions of this law call for a penalty; and it is as much a violation of it to withhold *all kinds*, or a variety of animal and vegetable food and fruits from man, as to stall-feed an ox on meats, or to graze a tiger on clover.

2. Deviations from a healthful standard, in the impression of atmospheric air, constitute another class of causes of disease.

On this proposition I venture the remark, that this source is most accused, but least at fault. Oxygen is tempered by nitrogen to a suitable medium standard for life and health, and the vegetable kingdom is continually absorbing its accidental impurities, and exchanging pure air: maintaining it in *statu quo*, or at the healthful natural standard. It is impossible for more than merely confined localities to have an impure air, and ventilation quickly corrects the evil.

3. Deviations from a healthful standard, in the impression of heat, light and electricity, always united, so far as science reveals, constitute a third class of causes of disease: the second and third classes are called meteoric causes of disease.

On this proposition I remark, that the power for good or evil of this class of vital stimulants, as manifested in the annual variations of the seasons, is more remarkable upon the vege-

table than animal kingdom. Man being enabled to heat up his system by oily, animal food in winter, and to avert, measurably, the discomfort of the high temperature of summer, by a diet of cooling, acid fruits, can, by studying the laws of diet, greatly accomodate himself to these exigencies.

Here then, this important matter is narrowed down, and presented to our common sense under three heads, embracing all known external influences in the material world capable of producing disease; and it follows, as a matter of course, that the cause which produces Cholera is to be looked for in one, or in two, of these sources, or in all three united. Now, it seldom happens, according to general observation, that great sickness and mortality occur, without the combined and co-operating influence or agency of these three causes, one acting as the remote, inlaying, or predisposing cause, and the other two as exciting causes. The question, then, naturally propounds itself—Which of these causes is most probably the remote, or inlaying cause of Cholera?

Looking at the phenomena as presented in the spread of Cholera, the two meteoric classes of causes named, covering high solar heat or insolation, vitiated air, vicissitudes, or sudden changes from heat to cold, and *vice versa*, humidity, rains, gales, tempests, thunder-storms and the barometrical phenomena noticed, appear in immediate connection with its outbreaks, progress or aggravation, and are not only generally considered, but are universally held and conceded to be, its *exciting* causes. Hence it follows, that some error in the vital stimulus of alimentation is the *remote* or *inlaying* cause of Cholera: there is no other remaining in the world from whence to derive it.

Forced to this conclusion by sound logic, I would ask in the next place—Does the error in the vital stimulus of food, which produces Cholera, most probably come of a profusion, a poisoning, or a scarcity? All the world will answer the latter; for the poor and destitute are its special victims, while the rich, having means to purchase plenty and variety, though prices be high, and so to fulfill the omnivorous law, usually escape; and under a general poisoning of the food, rich and poor would indiscriminately fall. Futhermore, the

population of a country holds in the ratio of its productions: famine is always followed by pestilence. Hence I am forced again, by universal observation, and the axioms of political economy, to conclude the error arises from an abridgment; and as the vegetable kingdom is most obnoxious to the meteoric influences causing blights, I infer the difficulty lies in an abridgment of the vegetable productions and stores, or a scarcity in kind, leaving the poorer classes on a cheap, stale, refuse, animal, coarse, *one kind of diet* without succulent vegetables.

Glancing now at medical history, it appears that down to near the close of the last century, from time immemorial, a peculiar form of disease, called scorbutus or scurvy, was the great scourge of mankind in all parts of the world, destroying more lives than all other causes of death put together, wars and accidents included. The same mystery enshrouded its nature, its cause, and its spread, that now hangs over Cholera; the same bewilderment and confusion prevailed at the bedside; all the causes that have been conjectured to produce Cholera, were conjured up, marshalled, and arrayed under plausible, specious and imposing hypotheses, and set down by their respective advocates as the causes of scorbutus; but at last, the simple truth forced itself upon the world, that the cause of scurvy was some error in the vital stimulus of food; and it is now well enough ascertained, that the error consists in the absence of succulent vegetables; let these be wanting or even but partially wanting, for any considerable length of time, and, no matter what the diet in other respects, scurvy will make its appearance. (*Budd.*) A return to the free use of succulent vegetables and fruits, and this course pursued, will arrest and cure the disease. For the last sixty years this disease has been measurably and apparently banished, or so held at bay, or modified by the inculcated free use of succulent vegetables, fruits and their juices, that it is not known or recognized when it does make its appearance, and its presence is not dreamed of, when but partially developed, although a whole community, municipality or nation, may be under its power and evil influence, and all forms of disease dreadfully aggravated by its presence.

"We have seen," says Dr. Budd, "that the approach of scurvy is gradual, and that prolonged abstinence from succulent vegetables is necessary for its full development; but it is our opinion that something short of this, that a condition which might be correctly designated a scorbutic taint, must often occur in the lower classes in towns, but especially in prisons and asylums, towards and at the close of long winters, when succulent vegetables are scarce and expensive. Such a condition of the system would necessarily modify the character and course of supervening acute diseases; and it is worthy of most diligent inquiry, whether that form of scarlatina denominated *maligna*, and analogous types of other eruptive diseases, may not, in some cases, owe their peculiar aspect and character to the circumstance of a scorbutic taint already existing, when the system becomes subject to the specific poison of these several diseases. A fact which renders this probable is, that these types prevail most during and at the close of long winters. We may here notice the extraordinary prevalence of typhus in the severe winter of 1837-38, and the petechial character of that epidemic. Sir Gilbert Blane has remarked that the low spotted typhus is always most prevalent in long and severe winters. Willan also states, that the malignant form of scarlatina is usually limited to the winter months. The following paragraph, from Huxam's essay on small-pox, may also bear on this subject: 'I have never observed either the *vegetable or mineral acids* of any great service in the crude crystalline pox, but I have often found them highly useful in the *small black confluent kind*, with *petechiæ*.' It appears to us, also, that by the common practice of physicians in many chronic diseases, patients are kept far too long a time on a diet consisting of farinaceous food. When a moderate use of succulent vegetables is considered prejudicial, it would be advisable to supply the patient with their equivalent, namely, a certain proportion of orange or lemon juice." (*Tweedie's Practice*.)

Thus the experience of Dr. Budd, and others, fully confirms the observations of the writer, that scurvy underlies and aggravates all forms of disease, that are developed towards the close of winter and through the spring, and,

according to the writer's experience, through the summer months also; for he has particularly noticed the great aggravation of midsummer bilious fever, and cholera-infantum epidemics, after long, cold winters, and retarded springs, for the last twenty years, as an invariable result or coincidence.

The outbreaks of scorbutus, then, *per se*, as well as its more hidden and complicated manifestations, follow cold winters and retarded springs; yet its pernicious influence is felt, more or less, particularly among the poorer classes in cities, every spring. It generally begins to show itself during the interregnum of vegetable supplies that occurs between the going out of old and coming in of new or fresh stores, develops into epidemic form under solstitial influences acting as exciting causes, and recedes in autumn, or as abundant supplies of fresh vegetables and fruits greet the markets, and their plentifulness reduces prices within the limited means of the poor.

These laws of scurvy are explained by the facts, that severe and protracted winters always frost and greatly abridge the vegetables and fruits in store; that they are generally preceded by summers of great heat and drought, which abridge production; and that, added to these evils, they weaken or debilitate the systems of all, by a prolonged low degree of the vital stimulus of heat, together with foul air within doors, confinement, or want of proper exercise; and these co-operating causes, pressing with greatest severity upon the poorer classes, whose diet consists of the coarsest and cheapest kinds of stale meats and breadstuffs, with pease and beans, at best, for vegetables, when the summer heat comes on, with other depressing and disturbing meteoric influences acting as exciting causes, epidemic scurvy is the result; and nothing but the abundance of autumnal supplies of succulent vegetables and fruits will restore the public health.

Placing these historical facts in connection with the preceding logical deductions, the human mind is compelled to yield assent to the adequacy of the cause assigned for the effect produced; and when it is considered how true must be

the adage, "there is nothing new under the sun," in the laws of Nature; I am forced to the conclusion, that *Cholera is but a modified form of scorbutus*, or a younger sister-scurge of the same parentage; probably better expressed by calling it a hemorrhagic termination of latent scurvy, or a manifestation of the law of sudden collapse, familiar among the dying phenomena of scorbutus.

I must either adopt this rational philosophy, or accept the most improbable alternative, that Cholera is a *new disease*; and lingering still on the confines of the history of scorbutus, I find its ever Protean character; its ever changeful, chameleon dress; its ever insidious, insinuating, stealthful invasion of masses of mankind, peculiarly situated; its ever misleading manifestations, strange vagaries, and anomalous phenomena; perfectly answering and solving the matter, if I cut myself loose from the dogma, that Cholera has other and a specific cause, and adopt this innovation in etiology, that Cholera is nothing but a symptom of scorbutus—a serous hemorrhage from the petechiæ, or lesions of the mucous membranes of the stomach and bowels.

The reasons drawn from observation, for believing Cholera to be of scorbutic character, are as follows, to wit:

1. *The coincidences of cold winters, retarded springs, frosts and blights preceding its outbreaks.* It is a matter of history that the winter of 1831–32 was one of the coldest winters ever known. The rivers and harbors of the United States were frozen from November until April, and winter was literally found lingering in the lap of May. The preceding summer was one of great heat and humidity, rains, floods and deluges. Reasoning from the intensity of these meteoric influences throughout the United States, the crops must have been distressingly abridged; the stores of succulent vegetables and fruits extensively frosted; and prices exorbitantly high in the spring of 1832. Under the operation of these causes of scurvy, active in the highest degree, when the summer heat of June of that year struck the United States, the Cholera broke out in New York and other cities and large towns, and raged until the scorbutic subjects were slaughtered, and the public health was repaired by the ripening and free use

of vegetables and fruits. Unfortunately for the state of the public health during that season, fruits and vegetables were interdicted by medical opinion, the notion gaining almost universal credence that they were exciting causes of Cholera, which opinion has ever since prevailed in the United States.

The same constitution of seasons, I am informed by an intelligent English gentleman, prevailed in Great Britain in 1831-32, and accordingly the Cholera broke out in London, and other large cities and towns of the kingdom, and also in Paris and other cities of France.

Not to undertake to pursue the cause through blights, by tracing it on the back track through Prussia and Russia, the year preceding, and so on to India, suffice it to note that its outbreaks and spread in America were governed by the laws that are known to govern scurvy, the date of its advent in the cities on this continent answering to the relative intensity of the causes of scurvy that should have been, and doubtless were, present to call it into action. It broke out of priority, as it should have done, in Quebec, (the colder the country, other things being equal, the more intense the causes of scurvy,) on the eight of June; on the tenth at Montreal; a little later at Kingston; and so in its south-west course up the lakes, to the Valley of the Mississippi, into successively warmer regions. It appeared in New York on the twenty-fourth of June; at Albany, where poverty and destitution were less intense, though the latitude is higher, on the third of July; at Boston, also later, for the same reason; at Philadelphia, on the fifth of July; and at Baltimore a few weeks later, and so on.

It made its appearance partially again in the year 1834, in the cities of the United States, after a rather cold winter, and surely the most frosty, blighting spring within the memory of the oldest inhabitants. All the fruits nearly, apples, pears, peaches, plums, grapes, currants, gooseberries etc., were blighted by a chilling frost that occurred about the middle of May. The peaches, apples, etc., of the size of sparrows' eggs, fell from the trees. The very forests put on an autumnal gloom. When solstitial influences came to bear upon this preparation of the systems of thousands of

the poorer classes, always most predisposed, the Cholera broke out with considerable severity in various cities of the United States. The fact was noticed, that it seemed to rage more fiercely again in the same cities where it was most severe in 1832, and where, no doubt, the causes of scurvy were most intense, and where, besides any influences of topography, the citizens were schooled and trained in the prohibition of vegetables, fruits and greens; and the country people not finding ready sale for these products, their culture was neglected, and they were deterred from marketing them through fear.

Again, the winter of 1848-49 was a remarkably cold winter all over the United States, the spring of '49 greatly retarded, and all degrees of the scorbutic diathesis were observed at the bedside by the writer of this, who had for years been an observer of its stealthful, annual appearance. The universal spread of Cholera in the cities of the United States, in the summer of 1849, is well remembered, and its continuance until the coming in and use of the new crops of vegetables and fruits. Their free use, however, during the prevalence of Cholera, has never been known or tolerated. They have rotted in the field rather. It has been held fool-hardy or tempting Providence to eat them.

Casting a glance across the Atlantic, the years 1846-47 were years of dearth, scarcity and blight in Europe, particularly of the potato, the most valuable anti-scorbutic vegetable known; and the scurvy and Cholera together followed, scourging the nations generally. Writers in describing the spread of Cholera in Europe in 1847, say, substantially, that it started from India again, early in that year, passed through the cities of Persia, and those along the shores of the Caspian, reached Astracan in July, and appeared at Moscow, faint and weary, in the fall, where it took a refreshing sleep through the winter, but woke up in June, 1848, much refreshed and invigorated, and pursued its travels *via* St. Petersburg, Berlin, Hamburg, etc., to Edinburg and London, where it arrived in November, *en route* for Paris. It is worthy of remark, that it struck England again, in her weakest and most scorbutic point, her Newcastle coal mines,

and foul holds of her coal vessels; and that, prior to its reaching France, the *cause* of it set sail from Havre for America, in two emigrant ships that sailed in October and November. In the October ship it broke out when sixteen days at sea; and the emigrants were landed at Quarantine, in New York, in November, and the disease spread through the Quarantine Hospital, where the sickly, scorbutic inmates were kept on a routine dietary, and whose cup of affliction was made to run over through panic and an increased accumulation of foul air; and a few cases occurred among the emigrants that went to the "Five Points," in the city of New York, where, however, it could make no progress, because of the abundance of fall fruits and vegetables, so it again slept through the winter, the intensely cold winter that followed. In the other ship it broke out when twenty-six days at sea, the *cause* in the emigrants having been more subdued before embarkation, by autumnal fruits and vegetables, than in those of the other ship, which sailed a month earlier; and the passengers were landed at New Orleans in December, where the disease spread among emigrants and the poor, the weather, for the season of the year, being hot, and a further reason, potatoes in the south scarce; and it continually appeared on the Mississippi in steamboats, among emigrant passengers, all winter, and in the river towns as high up as St. Louis and Cincinnati, and established itself gradually in the ports further and further north, as potatoes and succulent vegetable stores failed, and warm, debilitating spring weather came on.

In the summer of 1849, as observed, it broke out generally in the cities of the United States. Now in all these movements, or rather outbreaks, in Asia, Europe, on the Atlantic Ocean, and in the cities of America, it obeyed the laws of scurvy, and was rendered active in proportion to the *remote* and *exciting* causes of scurvy present; and the emotional, exciting cause of *fear* or panic must not be overlooked.

The more partial epidemic of 1850 is to be explained by the more partial abridgment of vegetables and fruits, in various localities, owing either to blights, the withdrawal of labor from production during the sickly summer of 1849, or the false doctrine that vegetables and fruits are injurious;

probably all combined. The scurvy was noticed again by the writer at the bedside in 1850, and it broke out in the Commercial Hospital of this city in July of that year, while the Cholera was raging here. (*Western Lancet*, 1851.)

The Cholera manifested some activity again in the summer of 1852, after another very severe winter, and a previous summer of great heat and drought, in various localities in the United States. The summer of 1852, however, was a cool one, in the main, and the exciting causes of Cholera, therefore, not powerful. Its ravages at Maysville, Ky., Wheeling, Va., and sundry other points in the Mississippi Valley, are matters of history, and can only be accounted for on rational principles, by tracing the cause to the constitution of the previous summer, abridging production in the localities surrounding the cities and towns where it raged, and the inclemency of the winter, frosting the vegetables and fruits in store. Finding that the conclusions drawn are all the way thus far supported by facts, the coincidences of cold winters, and the causes that produce scurvy, and that during other years there have been no epidemic manifestations of Cholera, the argument seems a good one and worth pursuing.

Applying the same theory, the want of succulent vegetable food, to the rather general prevalence of Cholera in the cities of the United States this season, 1854, a rather intense causation is found, of general application, in the extravagantly high prices of provisions during the present year, high prices not only betokening scarcity, but being the same in effect to the poor. I notice the fact in the public prints, that scurvy and Cholera were both found raging simultaneously in the Poor-house at Buffalo this summer.

Thus the coincidences of cold winters and retarded springs, preceding the outbreaks of Cholera in the United States, its vernal appearance, solstitial ragings, autumnal recessions and wintry slumbers, together with its uniform and close communion with scurvy, prove that it is produced and governed by the laws that produce and govern scurvy. Doubtless, if the statistics were at hand, that the meteoric phenomena and constitution of the seasons could be appealed to throughout

Europe and the world, the spread of Cholera would appear as the effect of cold winters, droughts, frosts and blights, in all places wherever it has prevailed, and that its ravages would be found in the ratio of the intensity of the causes, remote and exciting, that produce and develop scorbutus.

2. *The classes of persons who are the victims of Cholera, are those subjected to restrictions in diet; to a routine dietary; to a poor diet; to inactive habits and to confined, foul air; as soldiers in barracks and camp; sailors and boatmen; emigrants or ocean passengers; inmates of poor-houses, hospitals, asylums and prisons; inhabitants of besieged cities; dwellers in all filthy, poverty-stricken, God-forsaken localities of cities; immigrants just disembarked; laborers on public works; and the poorer classes in cities—precisely those who, from time immemorial, have been the victims of scurvy.*

3. *Admitting Cholera to be of scorbutic character, all the strange vagaries, attending its history and spread admit of rational explanation, to wit: its home and habitude in burning India, where the poor live on rice, any one kind of diet without succulent vegetables being sure to produce it; its flourishing in frozen Russia, where the serfs feed on train oil; its march with armies, where the dietary is pork and beans; its breaking out at sea, without the possibility of contagion causing it, where the emigrants live on ship-bread and salted meat; its special regard for immigrants just disembarked, crowded into filthy apartments in confined localities of cities, their blood rendered still more and more scorbutic, by a continued cheap dietary of pork, bread and beans; its recession in autumn, dormancy during winter, vernal re-appearance, and summer ravages; and its intensity being in direct ratio to the causes that produce scurvy. In fine, there is not within the writer's knowledge, a circumstance or anomaly in the history or spread of Cholera, that cannot be rationally explained by assuming the disease to be modified scorbutus.*

On this assumption it is not only rational but quite explicable, that one family having lived through a cold winter and spring without succulent vegetables, should die the following summer of epidemic Cholera, or whatever form or

modification scurvy may take on, it having always been of Protean character, while the neighboring family, having had meat, fruits and potatoes, should all escape attack; that the feeble and panic-struck should fall first; that the first cases should appear to be the most malignant and die on shortest notice; that a sudden change of food, even vegetables, and boiled cabbage in particular, should appear to produce it; that great summer heat, sudden changes of weather, foul air, etc., should develop it into epidemic form; that it should differ essentially from Cholera morbus; that it should leap from city to city, and let country people generally go free, who raise, store, and consume abundance of potatoes, turnips and other vegetables, apples, peaches, and other fruits, and only send their surplus to market; that it should give New England almost a *carte blanche*, where pot-luck and apples and cider constitute the winter and spring dietary; that it should travel, apparently, as we have seen it described by the date of its outbreaks, in the commercial thoroughfares, along rivers, canals, lakes, etc., and prove most fatal in the cities along those low, flat, cold, damp localities, as Chicago, Sandusky, etc., in which localities vegetables and fruits are not only scarce but of indifferent quality, and the co-operating causes of scorbutus powerful; that a villager not remote from one of those cities, whose vegetable stores had been frosted, on visiting the city when Cholera was raging, should overtask himself in the hurry of business, eat little or nothing through fear and anxiety, sleep disturbedly, see the corpse of one dying of Cholera that night at the hotel, leave for home before breakfast, reach home perfectly exhausted, be taken with Cholera, and die before next morning, two or three of his family and sundry potatoless neighbors "catch it," and follow in quick succession, and a potato and turnip, beef and cabbage eating farmer-neighbor hard-by, lay out all the corpses, and not "catch it;" that after killing off the constitutionally feeble, and those who had transgressed most by not eating vegetables, the epidemic should decline, and as vegetables and fruits came in and were more eaten, the later cases should become milder and more manageable; that persons flying from a city or locali

where the Cholera was raging, should, some of them, be attacked, in whatever locality sought, no matter how high, mountainous, rural or healthful the place, or pure, cool and bracing the air—the cause being in their own veins.

I notice in the *Galena Jeffersonian* newspaper, that the Cholera lately broke out among three hundred laborers on the railroad near Galena, Illinois, quartered on Scale's Mound, four hundred and fifty feet above the level of the Mississippi, the ground dry, the air pure, and no cause to be assigned for its appearance. The laborers were scattered, and down to the date of the notice, over one half of the number had died at the various points reached. The question is asked, "Who can give an explanation of the cause that produced such terrible results? Such results perplex medical science, and put at fault all theories in regard to the phenomena of Cholera."

On this I remark, that assuming Cholera to be a modified form of scorbutus, nothing is easier of explanation than the above awful catastrophe, and every similar result that swells the catalogue of this pestilence, so perplexing to medical science and contradictory to false theories. There are, comparatively, no vegetables and fruits raised in all the mining regions round about Galena, to my personal knowledge, and the scorbutic diathesis is so common a phenomenon there every spring season, that it would be remarkable if absent a single year, and a miracle, almost, if absent this year (1855) of exorbitant prices. The contractor having those three hundred laborers under his care, had quartered them high and healthfully, which fresh air of heaven cost him nothing, but when it came to paying out four or five dollars a bushel for three hundred bushels of potatoes a month, the case was different; besides, the potatoes, or other succulent vegetables, were not to be had at any price in all those regions in May, June, and July; and those three hundred laborers had lived on pork, and beans, and bread, until, prostrated by midsummer heat, modified scorbutus or Cholera broke out; and it broke out in them wherever they went, and slew them as transgressors of the omnivorous law, it mattered not where, whether in the temple of Hygeia, or the garden of Eden:

the transgression has been committed, and the penalty was sure to follow. Nothing short of a potato-patch might save them at that juncture, or an orange grove, which they were sure to miss in all those regions.

Thus, all difficulties vanish, darkness gives way to a fullness of light, every thing is explained on rational principles and by the natural laws—Cholera is in the *system* and not in the *air*, laid there, or produced by violating the law of kindness constituting man OMNIVOROUS, by which his happiness is so much exalted and enhanced: but the law must be fulfilled or the death-penalty will follow. With this key explaining the cause, the nature, and the phenomena attending the outbreak and spread of Cholera, it would now appear mysterious if the phenomena were different and the disease pursued any other course.

4. *The phenomena of Cholera at the bed-side*, with this key in our hands, reveal so plainly the pathognomonic symptoms of scorbutus, that after rubbing the eyes a little, the better to see through the drapery of some false appearances, every pathologist will discover a full length portrait. The great leading phenomenon is *dilquescence*, or a tendency to the liquefaction of the system. Vomiting and purging are but the proofs of what I say, mere accidents. The serum of the blood is thus being passed off. The solids are dissolving and keep up the currents through the bowels and the skin. So in scorbutus, the dissolving of the solids is the prominent feature: hemorrhage, diarrhoea, salivation bear witness. Hemorrhage of all the constituents of the blood is common in scorbutus, hemorrhage of serum only *generally* takes place in Cholera, the structural lesions of the mucous tissues being less deep. The vital powers are at the lowest ebb in both instances, and great emaciation, sudden death, and clearness of intellect till the last, fill up the measure of the leading phenomena in both. Furthermore, cases of Cholera now and then occur where there is neither vomiting nor purging, the mode of death being precisely as in scurvy, after hemorrhage or other shock, the phenomena being sinking, prostration, dyspnoea, gasping, jactitation, and death, with clearness of intellect to the last. The difference in the

symptoms all told, is never half so great or apparent as the difference between the ordinary symptoms of ague and fever, and pernicious fever or congestive chill, which all pathologists hold to be the same disease, produced by the same cause.

5. *The anatomical characters in Cholera* are not less positive in declaring the identity of its pathology with that of scurvy. The great structural lesion which dissection reveals, is *disintegration*, and in particular of the mucous tissues. The epithelium is detached from the internal petechial spots, and passed off by the diarrhœa, constituting the white fœculi in the dejections; or it is vesicated in extensively papillated patches; or abraded, but adherent in agglutinated coatings; and these morbid appearances extend not only throughout the gastro-pulmonary, but the genito-urinary branches of the mucous membranes; and patches of *ecchymoses* are often found in the mucous linings of the bowels, and a chocolate-colored fluid as their contents, denoting the oozing out of red blood; and "almost all parts of the body, the brain and spinal marrow, the substance of the heart, the abdominal viscera, the limbs, even the spongy substance of the bones, exhibit signs of venous congestion, and *large ecchymoses* are frequently found in all the parenchymatous glands." (*Wood.*) Now, not to lengthen this article by quotations, precisely the same characters are not only present in scorbutus, but they constitute *the main lesions of structure*, as every pathologist must bear witness, and the *ecchymoses* spoken of extend very often to the skin, constituting the petechiæ and patches of purpura, so frequently noticed.

6. *The curative and preventive effects of anti-scorbutic treatment in Cholera*, in 1849 and '50, furnished the hints that have led to the investigations which have established the writer's present convictions and conclusions. It will readily be believed therefore that there was some degree or tangible amount of testimony in this way at the bedside, enough, at least, to set the writer thinking, reasoning, reflecting and inquiring. Most, though not all, of the discoveries in Medicine have come in the same way. Some have been the result of the inductive mode of reasoning.

The curative virtues of strychnine in paralysis were inferred from *a priori* reasoning on its physiological effects.

Although scorbutus and Cholera were seen complicated, as then supposed, and domiciliated together "cheek by jowl" in 1849 and '50, in Chicago, where the writer was then practicing, and anti-scorbutics were freely administered, and their happy effects witnessed from day to day, continually, in fact, throughout both epidemics, still they were never relied on *exclusively* after the patient was stricken down, for the reason that the writer had then no theory on the subject. The calomel, sugar of lead, and morphine treatment was always combined, or some other empirical resort. The scorbutic diathesis was distinctly seen for many weeks prior to Cholera becoming epidemic, and was treated alone and complicated with the various forms of vernal diseases. In looking back from the writer's present visions of the nature of Cholera, upon the chain of evidences through which clearness of views has come, it is a matter of surprise now that his conclusions should not have been earlier drawn, but such is the "magic of a name," and so powerful are imbibed dogmas in medicine, that the human mind is not left free to interpret rightly the phenomena seen at the bedside.

The anti-scorbutic remedies which the writer now sees were effectual on account of their anti-scorbutic virtues, were the common salt emetic, (chloride of sodium,) which he was continually in the practice of administering as a first remedy, and soda powders throughout the attack. The soda powders were indifferently composed of the bicarbonate of potash or soda, and citric or tartaric acid. The salts of potash and soda, and the vegetable acids named, stand at the head of the list of anti-scorbutic remedies, and the reputed efficacy of common salt in arresting hemorrhage also further explains its value in Cholera. These views also throw light on the success that has attended the saline treatment.

The preventive relied on was punch, (lemonade dashed with brandy,) with five or ten grains of quinine to the quart, and when diarrhoea was present, a grain of morphine was added. This combination was relied on from having observed scorbutus complicated with vernal agues, and midsummer

bilious fevers in the malarious districts of Illinois for nearly twenty years, especially after cold winters, and from the further observed fact, that Cholera delighted in the same localities, particularly along the Illinois and Michigan canal. The writer could go on and specify numerous instances of the prophylactic effects of the remedy, in families where, one or two members being struck down with Cholera, the balance were put under the daily use of the mixture and anti-scorbutic diet, and escaped attack. Though nearly prostrated by a scorbutic taint, and not as generally expressed by that cloak for our ignorance, the senseless phrase "epidemic influence," their strength and spirits would revive, their tongues become clean, their choleric cease, their appetites return, and an array of evidences as strong as Holy Writ proclaim their salvation from Cholera by means of the anti-scorbutic preventive.

6. *The analysis of twenty cases of Cholera* observed at Pittsburg, Pa., on the 25th and 26th of September, 1854, chiefly in the Mercy Hospital, contains the crowning testimony that removes all doubt of the correctness of the writer's views, reduces the matter to certainty, theory to knowledge, and incorporates this discovery into the pages of medical literature among the established truths of medical science.

On or about the 15th of September, instant, the Cholera broke out at Pittsburg, Pa., and continued to increase in force for some eight days. On the 23d, the writer repaired to said city, and arrived there late on the evening of the same day (Saturday,) and found the epidemic had begun to decline. The city proper was the chief locality that suffered. In a former visitation, the town of Birmingham, south of Pittsburg, across the Monongahela river, suffered most.

The epidemic commenced with great suddenness, after heavy showers of rain with thunder and lightning, and the sinking of the mercury in the thermometer from 90 degrees to 65 degrees F. in a single night. It broke out that night in every ward in the city, showing conclusively that it obeyed some law other than that of contagion or portability. There had occurred some half a dozen cases at the southwest end of the city prior to that night; but on that night

forty cases or more occurred in the most widely scattered manner. It struck down the feeblest member or members of whatever family it touched, and about three-fourths of all who perished during the epidemic were women—principally mothers. It did not spread through or destroy whole families as it often does, but seemed satisfied to take the weakly and debilitated only. It increased in force for something over a week, say ten days from the first reported deaths, when the mortality reached to over one hundred deaths a day, in a population of some 60,000 souls. The crisis of the epidemic occurred under an equable temperature of about 70 degrees F., and the abatement or decline was rapid, the weather holding pleasant.

The topography of Pittsburg is such that the extremest impressions of heat and cold must inevitably rest on the city proper. Other things being equal therefore, Cholera should break out there before either in Birmingham or Alleghany City. The city proper, lying in the forks of the Alleghany and Monongahela rivers, is of the shape of an obtuse heater, or spread fan, with the point south-west. The surface rises to hills soon north-eastwardly, so that the sun's rays at two o'clock, P. M., are direct upon the face of the city. Underneath the hills skirting either river, is a narrow strip of low ground, and the strip along the Alleghany, bounding the city on the west, constitutes the fifth ward, and is exposed to the direct rays of the whole afternoon sun, and reflection from the cut and quarried hills back of it, heating it like an oven. This ward is populated wholly by the poorer classes and operatives in the iron manufactories. The Cholera was ten to one the most severe and fatal in this ward. Still it raged on the high grounds of the city also, which lack not for direct insolation, and are most reduced in temperature by upward radiation and cooling breezes at night. Alleghany City and also Birmingham are more protected by the hills from the direct rays of the sun than Pittsburg, and Alleghany City in particular appears to enjoy a further advantage, in its better adaption to the culture of vegetables and fruits.

Having ascribed the general prevalence of Cholera this

season to the exorbitant prices of provisions, I will here present the prices of the Pittsburg market, furnished me by Mr. C——, proprietor of the Monongahela House. "Beef, 11 cents per pound; mutton, 8 cents per pound; lamb, 75 cents per quarter; chickens, 31 to 50 cents per pair; butter, 45 to 75 cents per pound; eggs, 14 to 20 cents per dozen; Irish potatoes, \$2.50 to \$3.00 per bushel; sweet or Carolina potatoes, \$2.50 per bushel; tomatoes, all very bad, \$1.50 to \$2.00 per bushel; corn, (roasting ears,) 25 cents per dozen; onions, \$1.25 per bushel; turnips, none in market; apples, \$1.50 per bushel. Large quantities of diseased potatoes were sold in market just before the breaking out of Cholera, at \$1.25 per bushel. Vegetables generally have been poor."

I visited the markets on the morning of the 26th, and passed through two large and commodious houses, well supplied with choice meats, but not a potato, turnip, tomato, or other succulent vegetable, apple, peach, or other fruit of any description whatever, on sale or to be seen at either market. This is a more forcible commentary on the power and influence of medical opinion for evil than could have been anticipated. It shows very clearly that the prohibition of vegetables and fruits has not been overestimated by the writer as an unfortunate blunder of the profession, protracting and aggravating every epidemic visitation of the disease.

ANALYSIS OF CASES.—CASE 1.—Monday, September 25, 9 o'clock, A. M., through the courtesy of the Board of Health, visited, with Dr. —, a middle-aged German woman in the fifth ward, in the collapsed stage of Cholera—the patient speechless, pulseless, senseless, and cold as in death. The case had had no treatment. On examining the mouth, the objective signs of scorbutus were found most unequivocally manifest in a puffy and livid condition of the gums, pale flabby tongue, especially towards the edges, which bore the impressions of the teeth. This was considered a hopeless case, but the punch, with quinine and morphine added, was prescribed, as the patient was not past swallowing. The case terminated fatally in a few hours, and was only instructive as affording testimony of the presence of the scorbutic diathesis in the patient.

On examination of the other members of this family, six in number, all showed the objective signs of scurvy in different degrees, by the crimson line along the dental margin of their gums, their tongues furred centrally, and pale and smooth laterally, paleness of countenance, inertia of feelings, despondency and dejection of spirits. One suckling woman in particular, exhibited the signs of the scorbutic diathesis most prominently of all. They were enjoined to drink punch daily, and to make a free use of vegetables and fruits in their dietary.

CASE 2.—Mrs. O'Connell, a young married Irish woman, living in Miltenberger's Alley, was visited at half-past 9 o'clock, A. M. She had had a diarrhoea of two days' standing, which she described as being of characteristic rice-water appearance, and frequent—had vomited a few times only since having thrown off from the stomach, at about 1 o'clock at night, the meats she had eaten for her supper, in a sour, undigested state. Her constitution seemed unimpaired. She was sitting up, but complained of sinking, and great weakness. The pulse was feeble, the skin cool and dry, and the countenance pale.

On looking into this patient's mouth, the most perfectly displayed *early* characteristic signs of scorbutus presented, that it has ever fallen to my lot to witness. The mucous membrane of the entire mouth was pale, the tongue furred centrally, and pale and smooth laterally, the gums *pale* and *contracted*, save and except the most vivid *crimson*, I should say almost *vermillion line*, of less than the sixteenth of an inch in breadth, ornamented their dental margin, inside and out, festooned around every tooth, and the teeth all perfect in each jaw. These characteristic signs of the scorbutic diathesis were examined by Dr.—, who visited the case with me. The following prescription was made:

R.—Acid. cit. ʒ.—Quinæ Disulph. gr. v.—Morphiæ Sulph. gr. j.—Spt. Vin. Gal. ʒ iv.—Sacch. Alb. ʒ i.—Aquæ. Oij. m. f. sol.

S. Take a wineglassful every fifteen or twenty minutes, according to the urgency of the diarrhoea and vomiting.

The patient was ordered to keep her bed, and to have a pot of soup made by boiling a cut of fresh beef-steak, potatoes, turnips, onions, carrots, etc., together, flavored with savory herbs, and well seasoned with salt and cayenne pepper. This to be partaken of freely, and as hot as it could be supped, at the earliest moment it could be prepared. At 12 o'clock, M., the patient was visited again: she had followed directions, had taken the medicine several times, and supped a small bowl of soup. All disposition to vomit had ceased—the diarrhoea was much less urgent, and although no reaction was yet apparent, it was evident the case was doing well. Medicine and soup to be continued. At 2 o'clock, P. M., saw the patient again, and found her in a gentle glow; the skin soft and moist, the pulse full, the diarrhoea entirely checked, and feelings of perfect ease and general comfort were manifested by the patient.

At 9 o'clock on the following morning visited the patient again, in company with the physician in ordinary, and found her up and making her bed, feeling well. She expressed the greatest joy in being allowed the free use of vegetables and fruits. On examining the mouth, the crimson line at the margin of the gums was greatly faded. The husband and an unmarried sister of the patient exhibited none of the objective signs of scorbutus.

CASE 3.—Passing up Smithfield street, saw a young man in an alley vomiting. Took him to the office of the Board of Health near, and examined his mouth with Dr.—; find it in a very scorbutic state—tongue furred centrally, pale laterally, and *the gums puffy and livid all over*. He has had diarrhoea two days, and has taken two or three glasses of brandy this morning to check it—is partially inebriated. He refuses to take medicine if prescribed, finally consents to take a glass of soda water and suck a lemon. This case not seen afterwards, and is only presented as disclosing the objective signs of scurvy in cholerine.

On the morning of the 26th, I repaired to the Mercy Hospital, bearing a note from the Rt. Rev. Dr.—, desiring that I might be facilitated in making medical investigations in the Institution. Every facility was thus obtained, and

marked facilities shown me by the Sisters of Mercy, and the visiting physician, (no resident physician then in the Hospital) who arrived soon, and went his morning round, giving me a hurried history of the cases in the Cholera ward, and leaving me to investigate them at my leisure. My views of the nature of Cholera were briefly explained to the physician before he left the house, with the request that he would make observations, and test the value of anti-scorbutic treatment. Five consecutive hours were then spent in examining the following cases, comprising *all* the Cholera patients in the Hospital under treatment, and one in the convalescent ward. All the cases were admitted under fully developed Cholera, bordering on, if not in collapse, as per the testimony of the physician.

CASE 4.—Cornelius Shanahan, aged 20, admitted a week since, now convalescent, mercurial odor present—the gums are spongy, swollen, and livid all over—petechiæ, in the early efflorescent stage, sparsely scattered over the sides of the neck and arms—skin on the outer sides of the arms and legs, and also the palms of the hands, covered with white furfuraceous scurf—the lividity and swollen condition of the gums far exceed that which should result from the slight ptyalism present—no salvation or spitting—patient says he has eaten little or no vegetable food this season.

CASE 5.—Mrs. Mary McStay, aged 28, has an infant at the breast, attacked two days since, admitted yesterday—four cases of Cholera occurred in the house where she boarded—thinks there was a reasonable supply of vegetable food—dejections not watery or copious, and not vomiting—patient not emaciated—not much Cholera aspect in this case—no mercurial odor. It should be observed that the treatment of the Cholera cases is routine—all the patients are put under the administration of two grains of calomel, combined with opium, quinine and capsicum, every two hours, or until vomiting and purging cease. Of course the appearances in this patient's mouth are not modified by the effects of mercury, having been less than one day under treatment. On inspecting the mouth, I find the tongue coated with yellowish-white fur, and the sides red and granular-looking, or rough

—there is an intensely red line along the dental margin of the gums, and they are beginning to assume a red and softened appearance all over—no petechiæ or abnormal appearances on the skin. A bilious-cholera-scurvy case, lactation aiding its development, and a panic bringing it forth too soon.

CASE 6.—Louisa Hines, aged 17, admitted a week since—is from the County Jail; which, it appears, is made use of as a Penitentiary, *alias*, House of Starvation, where she had been confined three months on bread and water, and soup twice a week—the jail fare—no potatoes, turnips, cabbages, or other vegetables, nor fruits of any description allowed! The Cholera, of course, broke out in this prison, and a general jail delivery ensued. Many of the cases came to the Mercy Hospital, and Louisa is one of three only that remain alive! The prison is certainly a disgrace to the City, County and State. The constitution of this patient is sound—the skin is normal, and, save paleness of countenance, and the *scorbutic crimson line* tied around the teeth, this patient appears otherwise all right. There is no pyalism or mercurial odor—the gums are *pale and contracted*, except at their dental margins, and the mucous membrane of the mouth generally is very pale. These appearances are *pathognomonic* of the early stage of scurvy.

CASE 7.—Mary Ann Groff, an old German woman—but a few weeks in America—husband and son have died of Cholera in this epidemic. This old lady has only two teeth in her mouth; her system is not in the least affected by mercury; but the gums surrounding her two teeth are puffed up fully a quarter of an inch thick—the rim of the edentulous gums is normal—the tongue is furred on the centre of the dorsum, and very pale and flabby laterally—skin dry and scurfy—red petechiæ on both legs, and discolorations of fading purpura all over the calves—many minute red petechiæ on arms, and skin generally.

CASE 8.—Mrs. Myers, aged 45, a butcher's wife—husband has had Cholera, and is now in the convalescent ward. This patient is corpulent, (as a butcher's wife should be,) and insensible from congestion of the brain—under treatment

six days—no ptyalism or mercurial odor—gums swollen and puffed up half as thick as my finger, and livid as a piece of liver—skin all over the body, especially limbs and back, besprinkled and bespattered with petuchiæ, and bloody chops, which ramify extensively in zigzag bundles and fantastic span-gles and clusters, interspersed with large ecchymoses or patches of purpura. In numerous places the blood has oozed through the chops or cracks, and can be scratched off with the nail in the form of dried blood scabs. The purpura patches, or ecchymoses, on this patient's legs, are as large as my hand, and of bacon-rind or mummified appearance. Here is scurvy in a fat subject produced by meat eating; and when the serum of the blood was leaking through the chops in the mucous tissue of the stomach and bowels, and being vomited and purged off, it was a case of Cholera.

CASE 9.—Isabella Merritt, aged 25—the dietary of this patient has been bread, meat, and coffee generally—seldom eats any vegetables—has had excessive palpitation of the heart, and weakness for a year—has not eaten any vegetables or fruits of any description for more than three months past, except cabbage on two occasions—breath betrays a mercurial odor, and her mouth generally, and swollen, livid gums, in particular, give indubitable evidence of the scorbutic diathesis—no petechiæ.

CASE 10.—Mary Ellen Daily, aged 25—admitted three days since—has had diarrhoea since early in August—mucous membrane of the mouth chopped and excoriated in patches—gums display the crimson line along the dental margin, but are not yet puffy—recent petechiæ of every size, from mustard seed to buck-shot, are scattered over limbs, face, and body—the petechiæ are perfectly round, not raised or papillated, and not capable of being felt by the touch—they are pale crimson, disappear under pressure of the finger, and return instantly on removal of the pressure—no mercurial odor of the breath—tongue getting dry, with tendency to coma, or typhoid symptoms.

CASE 11.—Edward McDowell, aged 28—admitted a week since—is from the jail—was an inmate of the prison fourteen months—has had diarrhoea since February—dietary of the

prison, bread and water, and soup twice a week, Wednesdays and Saturdays; but patient seldom partook of the soup, finding it produced an aggravation of the diarrhœa—an affection of the heart came on after being in the jail five months, which has troubled him ever since—has had great irritation of the throat since February—has picked out five or six of his teeth since April with his fingers—mouth displays the objective signs of scurvy in an eminent degree—there is great pallor of countenance, and a universally anæmic appearance—there are numerous petechiæ on the skin, and the back is mottled with walnut-colored marks of desquamated vibices of the size of buck-shot and rifle-balls, too numerous to count, the epidermis hanging to some of them. In June and July the patient had bloody discharges from the bowels; in May and June vertigo and palpitation were most distressing. The authorities by which the Pittsburg jail is upheld are entitled to a premium for this, the “best” case of Cholera seen.

CASE 12.—James Hall, aged 20—admitted two days since—has worked all summer in a brick-yard—has had no potatoes or turnips at all for four weeks, and none, indeed, worth mentioning, for four months—pork and beef, and bread and coffee, have constituted his dietary—skin dry, scurvy, scaly, or furfuraceous, particularly on the extremities—gums very much puffed up, or swelled, and livid as liver—tongue clean and flabby—countenance pale—no petechiæ to be seen on legs or arms, back not examined—no odor of salivation—sound, with the exception of scurvy.

CASE 13.—Wm. Campbell, of middle age—admitted on yesterday—insensible from congestion of brain, and I can gain no information as to his mode of life—gums very red and swollen—petechiæ in their red stage sparsely scattered over the limbs and body—Cholera in the last stage—moaning and jactitation and deep sighing—eyes inflamed—face red—has probably been a hard drinker.

CASE 14.—John Tammany, aged 28—admitted three days since—has had an ague this (Tuesday) morning, and is now in the sweating stage—no Cholera symptoms present—has worked in an iron furnace in Ohio this season, where all

around him had ague and fever—came to Pittsburg a week since, but had not had a chill for four weeks—wrought one day in Pittsburg, and on the next day, which was Saturday last, was taken with a chill, and vomiting and purging, and was brought to the hospital—says he had good diet in Ohio, meat and potatoes, etc., but not much vegetable food during May, June, and July—in July sickened of billious fever—has had an extensive and troublesome eruption of sores all over his legs, which leaves the skin marbled, and of a dark chocolate or slate color, wherever there has been a sore—a cicatrix of large size on one leg is dark walnut color, or bacon-rind appearance—there are a few petechiæ or flea-bite specks sparsely scattered over his arms, say a dozen on each, well marked—the gums are swollen and livid all over—countenance very pale—no mercurial odor—the objective signs of scorbutus, and the symptoms of a quartan ague, are all the morbid phenomena that are left of this case of Cholera.

CASE 15.—Thomas Clennin, aged 30—admitted two days since, or on Sunday—felt sick on Saturday while traveling on foot from Washington, Pa.—thinks he has eaten of new potatoes a few times since they came in; but for five months has lived on ham, eggs, beef, bread, and coffee—mercurial odor in his breath—has lost most of his teeth, and also his palate, which he says occurred five years ago from medical treatment in Baltimore; under mercurial salivation his teeth came out, and his palate sloughed off. The gums surrounding the teeth that remain in this patient's jaws are very puffy and livid—tongue pale and flabby—no petechiæ are visible on arms or legs, back not inspected. A very much broken-down subject—doubtless had scurvy when he suffered the loss of his teeth and palate—says he never had the venereal disease—scurvy and mercury are all that ail him now.

CASE 16.—James T. Parsons, aged 32—admitted a week since—came from the jail—was three months there—mouth modified by treatment—tongue red and clean—gums very much swollen and livid, and blood oozes from their dental margins on slight pressure of the finger—breath foetid, but odor not mercurial—numerous crimson colored petechiæ are scattered over his face, neck and arms, and some of them are

papillated to the touch; large blotches of purpura on the arms.

CASE 17.—John Donohue, of middle age—admitted on Friday last—choleric symptoms mild from the first, and soon disappeared—at present there is a universally icteric state—tongue furred in the centre and pale laterally—gums very red and puffy—no mercurial odor—no petechiæ on arms or legs—back not inspected. Jaundice and scurvy are all that are visible, and the former is not more characterized by the pathognomony of the skin, than the latter of the gums.

CASE 18.—George Brandstatter a German immigrant of about 50 years of age, just arrived in this country—admitted on yesterday—objective signs of scurvy very prominent in this patient's mouth, as seen in the livid spongy gums, and pale flabby tongue—no petechiæ on arms or legs, back not inspected. This patient is vomiting and purging still, and is sinking rapidly into the stage of collapse—would be gratified to put him under the administration of the hot punch and hot soups, or the rational treatment, to staunch the hemorrhage and afford materials for new and healthy blood, but cannot interfere.

I must here pay a merited tribute to the Choir Sisters who officiate in this hospital. One or other of the three, all evidencing the highest order of intelligence, insists on accompanying me at the bed of every patient, to give the history of the cases, uncover the limbs and back for inspection, and in every way facilitate my investigations.

CASE 19.—John Wheely, aged 21—a German immigrant just arrived—admitted on yesterday—still vomiting and purging—gums very red and puffy all over—tongue furred centrally and pale laterally—no petechiæ discernible.

CASE 20.—C. J. Smith, a young man from New York—admitted over a week since—he is now in the convalescent ward, having surmounted the hemorrhagic tendency of the disease that gives rise to vomiting and purging, yet is in no other sense cured—his gums are frightfully abnormal in appearance—look as if beaten and bruised and puffed up from the injury—the tongue is clean and red, the mouth throughout modified by treatment—general appearance very anæmic.

The dietary allowed the convalescents is milk and bread, and soups, with rice, but without succulent vegetables. This young man came to Pittsburg about two months since, and has hardly partaken of any succulent vegetable food since he arrived here. Several other convalescent Cholera patients whom I have examined in this ward, exhibit the same objective signs of scorbutus in an eminent degree, and their history prior to admission discloses the same absence of succulent vegetable food in their dietary. It is unnecessary to detail these cases.

REMARKS.—The analysis of twenty cases of Cholera, then, discloses the fact, that every case was a case of scurvy, not a solitary exception, in, or out of the hospital, comprising *all* seen. This is a remarkable announcement; nevertheless, remarkable as it may seem, every word of it is truth. Had not the physical evidences of scurvy been present in *every* case, I should have marveled. The appearances which I have described will be found in all cases of true Cholera, and will henceforth be noticed by all practitioners in all parts of the world. Why they have been so long overlooked, (why they should have escaped my observation heretofore, *generally*, and were noticed in 1849 and '50, a complication of diseases should have been inferred,) is a matter of as much astonishment to me as it can possibly be to others: but such are the facts. Why, I have now been made the humble instrument of explaining the matter, is doubtless due to circumstances rather than to extraordinary penetration, or superior professional attainments. It has been a hard and difficult task to divest my mind of the false notion of some specific, poisonous influence, *overlaying* scurvy, even since I have been fully aware of the scorbutic diathesis *underlying* Cholera. It may be difficult for others, even yet, to see clearly: but if, as appears by our analysis, every case of Cholera occurs in a scorbutic subject, or in other words, that Cholera is a messenger of death, riding *always* on the time-honored steed scorbutus, it matters but little what be the theory as to the office or entity of the messenger—if we destroy the steed, the rider will get on but poorly. This we know how to do. But I can see no occasion now to search for further cause of Cholera

than the causes producing scurvy, no phenomena in Cholera other than what harmonize with the known laws of scurvy, and nothing at the bed-side after the hemorrhagic action is arrested but the physical evidences of scurvy, neither do the books describe any anatomical lesions contradictory to this view.

CONCLUSION.—In conclusion, if I have not explained every thing pertaining to the subject in this brief monograph, I have given the key that will explain every thing when the laws of scurvy shall be perfectly understood, and it is a consoling reflection that nations, cities and families can hereafter enjoy protection or immunity from the scourge of epidemic Cholera, by simple conforming to the natural laws in regard to diet. The proofs presented, that Cholera is a modified form of scorbutus, are as strong as physical proofs can be, or as strong as inductive reasoning can present; as strong as that the sun is the centre of the solar system, and that the earth and the other planets revolve around it: all the phenomena admit of explanation by the theory—the theory tested by practice proves effectual. *Why* scurvy is thus modified, (it always was a Proteus), has constituted no part of these researches. This will be a subject for further reflection with the writer. The laws of scurvy have yet to be investigated by modern observations, researches and statistics. The scorbutic diathesis may yet be found to hold a more special relation to *all the zymotic diseases* than has heretofore been suspected. Medical meteorology, or the constitution of the seasons, (abridgment of the crops and fruits by blights,) holds a direct relation with the state of the public hygiene; and it is to this *tangible* cause of disease, and not to an imaginary *malaria*, that we are to turn in search of the laws governing epidemics. With a rational pathology, treatment and prevention made known, Cholera is divested of all its terrors. Sanitary regulations can now be instituted that shall meet its invasions at the very threshold—in ship, camp, or city, and the public mind be so indoctrinated by suitable publications on the subject, that every family may know in what constitutes its safety; in fine, the true philosophy so disseminated, that the wayfaring man, though a fool, need not err therein.

APPENDIX.

EXTRACTS FROM BRITISH JOURNALS.

BLIGHTS AND CHOLERA.—In *Ranking's Abstract, January, 1854, p. 219*, will be found the following notice of blight in vegetation coincident with Cholera, corroborating my theory:

"The swarms of flies which have been noticed at Newcastle, during the present epidemic, and which were noticed in the epidemic of 1832 at Montreal, seem to mark one phase of that *blight in vegetation and murrain among cattle*, which has preceded the Cholera scourge, and which still attends upon it."

The following establishes the coincidence of blight and pestilence.

"The coincidence of *blight* with pestilence has been recorded from ancient times, and the wide spread *potatoe disease*, which has now extended to almost every region of the globe, concurrently with the presence of the influenza and cholera poisons in the air, may possibly be a modern instance of it."—(*Report on Quarantine, London, 1849, p. 14.*)

The course of nature—the annual revolution of the earth—is governed by laws more or less favorable to the perfect development, or the perfection of vegetable life; and imperfection, decay and death of vegetation inhere also in those laws. It is morally impossible it could be otherwise. Deity could not carry out the law of the seasons, and the succession of vegetable and animal life by natural causes otherwise. Imperfect vegetation leaves the lower orders of animals and man on defective alimentation; and thus inlays latent disease, to be developed under excessive impressions of the meteoric vital stimulants. Hence the coincidence in all time of blight and pestilence, the latter following, as the tides follow the moon's southing; and yet the exciting causes—ardent meteoric impressions must concur to develop fully the epidemic phenomena. The cause of blights, then, is chargeable to the laws of nature, and Cholera to blights. I am aware that Diemerbroeck, Webster,* and perhaps others, charge

* See Webster on Pestilence, vol. ii. p. 128.

blights, sickness in animals, and epidemics in men, all to some unknown, mysterious, common cause, as the influence of comets, &c.; but my observations do not warrant this inference, nor do I think such views truthful, philosophic, or calculated to advance medical science.

ACID TREATMENT OF CHOLERA.—In the same No. of *Ranking's Abstract*, page 222-24, noticing the treatment of Cholera down to that time, the Editor remarks as follows:—

"The treatment by sulphuric acid, however, is that which seems to be of greatest promise. This treatment we have tested to a considerable extent at the Westminster Hospital, with half-drachm doses of dilute sulphuric acid, with a drachm of the compound tincture of cardamoms, and a little peppermint water, and the result has been almost immediately beneficial. The constant answer of the patient has been, that the first dose relieved and the second or third stayed the complaint. * * Nor is this practice quite empirical, for if this acid acts beneficially in hemorrhage, it may be supposed to act similarly in Cholera, the serous discharge of which may be called a *white blood hemorrhage*.—[Editor's italics.] Several writers have called attention to this acid treatment during the last half year, particularly Dr. Fuller, (*Medical Times and Gazette*, Oct. 1, 1853.) Dr. Fuller says:

"My own conviction is, that in sulphuric acid we have an antidote—a specific against choleric diarrhoea, if not against the worst forms of Cholera, as powerful, as energetic, and as certain in its effect, as in cinchona bark or quinia against a paroxysm of ague.

"The effects produced by this remedy are very remarkable. Sometimes after the second dose, more commonly after the third, and almost always after the fourth dose of the medicine, the patient experiences a grateful sense of warmth at the epigastrium; heat returns to the extremities; the nausea and vomiting immediately cease; the purging is stayed; the cramps subside; and the countenance resumes its natural appearance."

The above will suffice to show the efficacy of the acid treatment of Cholera, although much more could be added from the British journals, corroborating the fact; and the rational explanation is afforded by my views of the *scorbutic nature* of Cholera.

CHOLERA AND SCURVY.—Further and most striking corroboration of the truth of my views of the scorbutic nature of Cholera, is found in the able paper of Mr. Thom, published in the *Medical Times* in 1848, from observations made at Kurrachee, India, while surgeon to her Majesty's 86th regiment. I quote three of his paragraphs:

"*Latent condition of Cholera*.—The state of the system referred to, as resultant on chemical change of the constituents of the air, in which carbon is accumulated in the blood and fibrin, and albumen diminished, will vary in degree according to idiosyncrasies, habits, and constitution, so that certain numbers of a community will be afflicted to an extent bordering on, or breaking out, into open disease. Noxious agencies, whether of atmospheric origin, acting on the skin and lungs, or as poison introduced through the assimilating functions, when applied in a minute degree, but steadily kept up for a length of time, have a tendency to produce effects that are called accumulative. Their action is latent, but not the less certain, till all of a sudden it is developed as if the whole had been suddenly concentrated into one overwhelming dose.

"*Connection with Scurvy.*—The scorbutic diathesis furnishes a forcible example of this ; and sudden death is not only induced by slight causes of excitement, in men laboring under it, but even those who have exhibited no alarming signs have been equally affected. This is exceedingly applicable to Cholera, between which and scurvy there is a great analogy in the state of the blood ; and on Cholera subsiding, the scurvy appeared in our regiment, and also in other corps.

"*Sudden Climax of Accumulative Morbid Changes.*—If, then, by a sudden increase of all the causes of this latent diathesis, a state of weather inducing universal congestion almost approaching to obstruction of the vascular system occur, can we be astonished that life will, in many, be abruptly cut short, as if some lethiferous draught had been swallowed ? Such, I am firmly persuaded, is the only rational way of accounting for those numerous cases of Cholera which terminated fatally in a few hours, without those symptoms which nature usually exhibits in a salutary effort to remove local or general congestion.—(*Medical Times, March, 11, 1848, page 388—Epitomised in Ranking's Abstract.*)

Whoever reads the above attentively, must either adopt Mr. Thom's view, that there is a *choleric diathesis* so much like the scorbutic, that its accumulation in the system, latent condition, and sudden law of collapse, are so similar, that no one can diagnose clearly between them, or my view, that Cholera is scurvy : it is either some great analogous evil, or it is the same thing a little varied in aspect. The reader must judge which is the more probable view. I marvel that Mr. Thom did not identify Cholera and scurvy.

LATE OBSERVATIONS.

The year 1854 will be long remembered in the United States, as a year of scarcity and high prices of provisions. The summer was hot and dry, and Cholera was epidemic or subepidemic in most of the cities and many of the villages. The objective signs of the scorbutic diathesis were apparent in the mouths of most persons whom I examined during the summer, fall, and succeeding winter, which was a hard one ; and in the spring of the present year, 1855, land scurvy was very prevalent all over the Western States, at least. When the spring opened, and warm weather set in, the Cholera began to appear, and some cases occurred even in the winter. The weather was hot in May for that month, and in boats on the Mississippi river ; among emigrants ; in the river towns ; in the extreme Western new settlements of Missouri and Kansas ; and especially at New Orleans ; the Cholera broke out and raged epidemically. The months of June and July were cool and equable, the thermometer never indicating over 88 degrees F. in the shade in my sleeping apartment, southern exposure, second story, during the entire two months ; and refreshing showers of rain watered and cooled the earth from time to time, and caused unexampled crops

of early summer vegetables and fruits, unprecedented in the annals of our country, both as to quantity and excellence of quality, to greet the longing appetites of everybody. Cholera began to abate under this state of the healing virtues of succulent vegetables and fruits, and mild, equable, summer temperature. Cases of Cholera, however, are now, second week in August, of every day occurrence in Cincinnati and vicinity. Four deaths occurred in one day of last week at the Commercial Hospital. I went hastily through some of the wards of that institution early in July, and saw many cases of scorbutus; I was through the jail in May, and noticed that the objective signs of latent scorbutus were general in that prison. Lexington, Ky., and many other towns in this region, have suffered more or less from Cholera. Last week it was announced in the public prints that the Cholera had broken out in the Insane Asylum at Lexington; some ten or twelve deaths suddenly occurring. Wherever it has appeared, it has been very mortal. Not only Cholera but Yellow Fever has appeared epidemically at New Orleans, and some of the cities on the Atlantic coast, sufficient to give the hint, at least, that this fell scourge may also be a scorbutic fever, depending for its cause remotely on defective alimentation also. The black vomit that so especially characterizes it, rather favors the idea, it being a *gastric hemorrhage* undoubtedly. Still, as I have never seen a case of this disease, nor tested the efficacy of the acid treatment, this suggestion is offered only as a suggestion.

Now, in this brief recital of the constitution of the past year and present summer, who does not see the strongest corroborating evidences of the truth of my theory? Latent scurvy or Cholera has been seen lying broad-cast all over the land since early in the spring, and in some places, as at Jefferson Barracks, the supposed two diseases, but really only different modes of manifestation of the same disease, broke out simultaneously in epidemic form among the recruits, about the 10th of May, thermometer at about ninety degrees F., but was soon subdued. An unheard-of abundance of West India fruits, oranges and lemons, at a cent a piece, greeted us early in the spring, followed, as has been said, by a flush of all kinds of native fruits and vegetables in their season, of the very best quality, to the reduction of the price of potatoes, the grand succulent staple, from two dollars to forty cents, the present price per bushel, and all else in like proportion, the meteoric exciting causes of disease holding of the mildest and most equable character thus far; no sudden changes; no remarkable variations of weather

or vicissitudes of temperature; abundant rains at reasonable intervals; medium flowing rivers; harvests astonishingly fine; in a word, a year of plenty to heal the scorbutic million, or, at least, stay for this season its wide-spread and general epidemic manifestation. Still some are seized with the "white blood hemorrhage" notwithstanding. Here and there occurs a case of Cholera in the practice of almost every physician. Eighty-eight deaths last week from Cholera in Cincinnati, in a population of probably 180,000: subepidemic at least. In this state of things, I urge it upon the attention of those physicians whom I meet, to take note of the state of the gums, and tissues of the mouth and throat, in every Cholera case, and to try the anti-scorbutic treatment, viz, acids, soda powders, punch, whey, soups, etc., *ad libitum*, combining a little morphine and quinine with the punch. This course proves successful in my practice, and that of other physicians so far as tried.

CASES AND DEDUCTIONS.

CASE 1.—This case was handed to me by a friend, a veteran practitioner in this city, who practiced here through the Cholera epidemic of 1832, and who moreover received my views, when first announced, as visionary.

"CINCINNATI, March 22, 1855.

"Dr. KNAPP, DEAR SIR.—The following very briefly drawn up case, of recent occurrence in my practice, I deem in unison in its results, with the theory I heard you advance in a paper read before the Medical Society of this city.

"Feb. 23, Was called to see Mrs. —, age 38, mother of five or six children, youngest still nursing, one year old. Patient is laboring under a severe form of granular conjunctivitis of some weeks standing—had been under medical treatment previously—is of rather cachectic habit.

"Feb. 26, 10 o'clock A. M., found my patient laboring under chronic diarrhoea, now suddenly aggravated—some half dozen stools during the night, and as many more by 10 o'clock this morning, of a strongly marked Cholera nature, viz., of rice water appearance, and the peculiar foetid odor of the worst cases of Cholera as it appeared in this city in 1832. Pulse small and feeble: countenance sunken; skin bedewed with cold clammy perspiration; great pain and colicky cramps in the bowels; in fine, symptoms verging to a state of collapse.

"Directed of sulphate of morphia one-eighth of a grain; and sulphate of quinine two grains, in solution to be given every hour until the bowels should be checked, and quietness induced; and the patient to drink of hot whiskey punch, and fresh lemonade *ad libitum*; to have stimulating frictions to the skin; to observe the recumbent posture, even at stool; and at the same time to drink freely of highly seasoned animal and vegetable soup.

"At 2 o'clock P. M., found my patient resting quietly—diarrhoea perfectly arrested—morphine and quinine omitted—continue lemonade and soup.

"Feb. 27, Slight return of diarrhoea this morning, but relieved by repeating prescription, with punch and soup diet continued. Convalescence was rapid under this course and permanent.

"Very Truly, Yours, etc.
F. A. WALDO."

The above scorbutic case is very similar to some that fell under my observation at about the same date. There oc-

curred a very mild state of weather for some two weeks in February, followed by sudden and severe cold, repelling the fluids in, upon the internal capillaries, and the consequence was a white blood hemorrhage from the bowels, in many of the scorbutic poor.

CASE 2.—This was one of them, and occurred in a nursing, poor woman, who, together with a suddenly aggravated chronic diarrhoea of the fetid, rice water character seen in Cholera, had a conjunctivitis of the eyes that would have eclipsed any eyes for redness seen in the last or comatose stage of Cholera. I treated the case with the sourest kind of whiskey punch, morphine, and potatoes; one ounce of tartaric acid to a quart of Ohio whiskey, five grains of quinine, and two of morphine, used *ad libitum*, with either hot or cold sweetened water—potatoes and milk diet. From being bed-ridden and blind three weeks, she was up and about in ten days, and the eyes gradually recovered their whiteness without any local applications whatever. Scorbutic sore eyes that baffle the skill of all who misjudge or overlook the constitutional seat of the ailment, are common. This case, as also that of Dr. Waldo's, was, in my judgment, a case of *nursing sore eyes*, naming the disease, as is fashionable, from the most striking symptom—Cholera, when the bowels were rapidly running off with rice water discharges—but scurvy when generalized to its root. The objective signs of scorbutus were prominent in the mouth—tumid gums, and tongue red and sore at the tip.

CASE 3.—I was called June 13 to attend Mary C—, an Irish servant girl age 20. Found her vomiting and purging, and laboring under great epigastric oppression, and much general distress. The discharges were not copious, but of rice water appearance, and the vomiting occurred only at long intervals. Nausea was constant, and drinks were ejected with much retching. She had had diarrhoea for a week, which had baffled all the domestic remedies, and vomiting supervened the evening before I was called. There was palor; a weak pulse; moist, pale, flabby tongue, slightly furred on the dorsum; and hyperæmia of the gums and arches of the palate. On asking her what she most craved, she replied "something sour." I ordered a pint of lemon juice and a pint of whiskey, with two grains of morphine and two of quinine mixed, and a table spoonful to be taken in a little ice water sweetened, every half hour, till the irritability of the stomach, and bowels was quieted. She retained these potions; had no more vomiting; and the diarrhoea ceased in a few hours. The following day she took and retained boiled milk and soup; and on the third day partook of solid vegetable food and stewed fruits of the season. She was ordered to continue the medicine three times a day, and to make use of vegetables and fruits, and to drink freely of lemonade daily. Under this course she gradually recovered her strength and returned to service. This was evidently a case of scurvy that took on the choleric form, symptoms not unusual, as we shall see in the sequel.

CASE 4.—Summoned June 14 to attend Mrs. A—, a nursing Irish woman, attacked with well marked ague. The rigor had lasted a full hour, and I found her in the hot stage, laboring under great epigastric oppression, and the universal distress common in such cases. It being a very plain case, I prescribed according to routine usage in such cases, viz, fifteen grains of quinine and one-fourth of a grain of morphine to be taken instantane. In an hour she was in a full sweat, which lasted twelve hours, and left her free of fever, but very weak, so weak she thought she was dying, and so sent for her confessor. On examining her mouth next day, I found that the gums betrayed the crimson line along the dental margin; that the tongue was sore; the buccal surfaces papillated with numerous pustules in patches; that the fauces were highly crimsoned; and all needful objective signs of scurvy present—a nursing sore mouth case, to all intents and purposes. I put her on acids, tonics, and a fresh, succulent, vegetable diet, and ceased to look after her, as she was able to rise and walk about house, and the husband fidgety in view of a medical bill.

Six weeks subsequently, a short time since, she accosted me on the street and related to me her narrow escape from death by an attack of Cholera. She said she suffered from diarrhoea two days, when vomiting came on in the night time, and was violent till morning, when it began to abate under her domestic remedy, and soon ceased. The remedy was *sour whey*, made by mixing sour buttermilk and boiled sweet milk together, and pouring off the whey. This she drank freely, and as hot as she could sup it. She described it as being exceedingly grateful in quenching her thirst, and said it finally stopped the vomiting and purging. This was her account, and I have no reason to doubt the truth of her simple narration of facts. I examined her mouth, found she had scurvy still, took her to my office, and prescribed for her, and her infant six months old, laboring under it also.

This is, indeed, a very instructive case. Four diseases—nosologically, atop of one another; viz: scurvy; intermittent fever; nursing sore mouth; and Cholera. No comments I can make upon it will, perhaps, have the same force as the following remarks of Dr. Barnes on scurvy as he finds it masked by other diseases in the London Hospital:

“Marked cases of scurvy are not, perhaps, numerous in London; but minor degrees of the scorbutic condition may be detected on careful inquiry and observation. Patients so affected present themselves at the hospitals, complaining of various ailments, such as rheumatism, fever, gastralgia, debility, hemorrhages, dysentery, etc., the scorbutic taint being masked by the more prominent disease. Dr. Barnes regards it as certain, that if these more prominent diseases have not in all cases arisen as secondary affections upon the scorbutic degradation of the blood, yet that their nature and course are so modified by this complication, that it is necessary to take the scorbutic taint into consideration in prescribing the treatment. Good diet becomes a most indispensable point, without which the ordinary medicinal agents can affect little. It was an observation of Commodore Anson, which has been confirmed by modern experience, that those who are debilitated by advanced or immature age, or previous disease, are most prone to fall into a scorbutic condition. The children at the well known school at Tooting were mostly disposed to scurvy from bad diet before the cholera broke out amongst them. [Hear.] * * It is well known that the deaths of thousands of soldiers, registered as owing to fever, rheumatism, pneumonia, and other causes, are in reality to be ascribed, if we ascend to the primary pathological conditions, rather to scurvy, [hear.] a condition upon which the fever, rheumatism, and other immediately fatal diseases, are but epiphenomena.” [Hear, hear.] (*London Lancet*, June, 1855.

Then, according to Dr. Barnes, of the London Hospital, the case I have just related must be regarded scurvy at the base, the real “primary pathological condition” to be prescribed and dieted for, as a *sine qua non* in the treatment, and all above it a masquerade; or, in other words so much nosology; that is, the intermittent fever, nursing sore mouth, and Cholera, were extraordinary *top symptoms* of scurvy; more conveniently and properly classed as diseases perhaps, since the course and symptoms are so unlike ordinary scurvy; but equivocally advantageous to the interests of medical science and humanity, if the dignity of names is made to obscure the primeval pathology, and wholly sink the cue to the remote etiology—defective alimentation. Dr.

Barnes' application of the principle to the Tooting children is an illustration of my views precisely. Upwards of a thousand pauper children were in that establishment, "*disposed to scurvy from bad diet before the cholera broke out amongst them*" in 1848, after the potato blight and general scarcity that prevailed throughout Great Britain during the times of the Irish famine; and some 300 or more of them took on the scorbutic or white blood hemorrhage, and died of cholera—epi-phenomena of the scorbutic pathological condition, according to Dr. Barnes, June 1855—A hemorrhagic termination, or the dying phenomena of scorbutus, as I explained the matter a year ago, August, 1854.

Now these views of Dr. Barnes, based on observation and therapeutics in the London Hospital, are too important to be lightly passed over by the profession; and running parallel with my views and observations in diagnosing and treating Cholera as scurvy, it would seem that these new views should have been entitled to anything under the name of criticism rather than the attempts at ridicule which some wise editors have seen fit to bestow. However, if the subject is one to justify ridicule—if researches in medical science by any member of the profession are ridiculous—if original views on the grave subject of cholera, based on facts and observations, are in the opinion of some journalist reviewers matters worthy of being ridiculed and laughed at, so be it: I should expect in the next place to see them deriding virtue of any kind.

It is to be observed that I do not enter a special plea *in this essay* for any disease being of scorbutic character but Cholera. I am treating of that subject solely, and do not care to complicate it. It will appear, however, before I close, that, not only the choleric phenomena, but also the symptoms by which some other diseases are characterized, are but *epi-phenomena* of scurvy according to the old authors, as well as Dr. Barnes of the London Hospital. At all events, I think I shall be able to show by ancient and modern authors that scurvy is not greatly modified, after all, as manifested in Cholera.

CASE 5.—Common cider vinegar, drunk undiluted, has, in one case of severe vomiting and purging that has fallen under my observation this summer, occurring in an apparently healthy youth, and which I held to be Cholera morbus, proved an effectual remedy. It is the opinion of some physicians that Cholera and cholera morbus are the same. I have assumed in the body of this essay that these affections are essentially different; that the former is a scorbutic affection, and the latter an accidental irritation, caused by a surfeit or offending ingesta; just as we can excite the affection by tartar emetic, in a person in health. Still I may be in error; and the case cured by vinegar will then stand as another proof of the efficacy of the acid treatment in Cholera, and corroborative of its scorbutic nature.

CASE 6.—My friend, Dr. Waldo, has just informed me of a very recent case of Cholera, cured under his observation by *hot whisky punch and nutrition*. The case was in the profoundest collapse, and deemed hopeless, when the Dr. suggested the punch and soup treatment. This was in the evening. In three hours time reaction began, and on the following morning the girl was able to converse; had no more vomiting or purging; and speedily got up on a continuance of acid drinks, and proper nutrition.

CASE 7.—July the 4th, called towards evening to attend a laborer, whom I found in the collapsed stage of Cholera, pulseless and blue as an indigo bag. Soon after I entered the room, he crept on his hands and knees from his pallet on the floor to the chamber-pot, and after discharging a pint or so of rice water fluid, and being helped back to his couch, immediately expired. His gums in death showed no lividity or evidences of scorbutic softening; and I have noticed that the gum symptoms have been wanting in some other fatal cases of Cholera.

Some practitioners, under whose observation cases of Cholera have occurred this season, have said to me that they detected no evidences of the scorbutic diathesis in the mouth—none of the objective signs of scurvy. By reference to cases No. 2 and 6, in the body of this essay, it will be seen that the gums were pale and contracted, and the tissues of the mouth generally very pale; nothing but a very fine red line along the dental margin of the gums, liable to be overlooked by a casual observer, gave any evidence whatever of the scorbutic diathesis; and this, it should be borne in mind, is indicative of the hemorrhagic tendency, and not a manifestation of puffiness and softening; and may, for aught I know, disappear in the stage of collapse, after the patient is bled to death, as it were. The red line would naturally enough vanish under such loss of blood, and no evidence of scurvy whatever remain. It becomes a matter of importance, therefore, to know what is the state of the gums in the different stages of scurvy; and also to understand that the white blood hemorrhage may set in, and carry off the patient before the scorbutic diathesis has been present long enough to produce tumefaction of the gums. On these important points I am happy that I am not left without authorities, both ancient and modern.

Dr. Shapter, of Exeter, England, says, (*Provincial Med. and Surg. Journ.*, June, 1847, *Epitomised in Ranking's Abstract.*)

"In this epidemic [scurvy following the Irish famine] the initiatory symptoms were those indicative of general debility. The patient complained of weakness and listlessness, had a sallow countenance, and *pale and contracted gums*."—[Italics his own.]

Mr. Stiff, (*Med. Times*, June, 1847,) says:

"In old and edentulous subjects the gum symptoms do not make their appearance at all," And in subjects having teeth, "at first the margin of the gums is livid for one or two lines, even when the mouth and lips are anæmic, and this appearance resembles the lead symptoms."

Dr. Curran, (*Dublin Quarterly Journ.*, Aug., 1847.) noticed in his practice, that—

“A diseased state of the gums was one of the most constant symptoms, being absent in four cases only.”—[Italics mine.]

Dr. Ritchie, of Glasgow, (*Edinburg Med. Journ.*, July and August 1847,) noticed four varieties of scurvy:

“One variety was distinguished by anæmia emaciation, diarrhœa, bloody stools, and dropsy, while the more distinctive symptoms of scorbutus were wanting.” [Italics mine.]

And one of the distinctive symptoms here alluded to is tumefied gums, which every physician, almost, seems to think must be present, or the case is not scurvy. Most of the nursing sore mouth cases are of this or the following variety. (*See my paper in the New York Journ. of Med. for May last, on this subject.*)

“A second by anæmia; often by diarrhœa; rapidity of the pulse; epigastric pain or oppression; great general distress; an urticated crimson efflorescence on the skin; petechiæ and hemorrhages.

“A third by pains along the course of the nerves; simulating rheumatism.

“And lastly, the more ordinary form in which affected gums and legs were the prominent symptoms.”

Now this last variety has been the one most commonly recognized as scurvy, in and out of the hospitals in these parts this season; but I have seen a number of cases of each of the preceding varieties. Cholera comes more properly under the second variety. Epidemic Cholera in children presents every symptom mentioned in this variety, viz., “anæmia, diarrhœa, rapid pulse, epigastric oppression, great general distress, an urticated crimson efflorescence on the skin, petechiæ and hemorrhages.” How could the symptoms of the general run of cases of Cholera Infantum be better described? Nothing prominent is omitted but vomiting; and if the white blood hemorrhage takes place in the stomach, vomiting must and will occur; and then the case would be recognized by all as Cholera. I recognize epidemic Cholera, in both infants and adults, as coming clearly under Dr. Ritchie’s second variety of scurvy, and refer my readers to his able paper, and others that appeared after the Irish famine.

The old authors bear testimony to the absence of the gum symptoms also. Lind, in conveying the sentiments of Eugalenus, who wrote nearly 300 years ago, says:

“And what is still more remarkable, the face of the disease was in a few years so much changed, that the putrid gums and swelled legs were no longer characteristic signs of it, as it often killed the patient before these symptoms appeared; [Italics mine]; and it is highly probable from the histories of

above two hundred cases of patients delivered in his book, wherein mention is made of the gums being affected in one person only, that such symptoms did now but rarely, if at all, occur." (*Lind on Scurvy, second edition, page 5.*)

And in this connection, with the old authorities before me, I proceed to redeem my promise, and to show by quotations from them that the Cholera flux has always characterized the scurvy more or less; that this watery flux of the belly is nothing new; is not a *new disease*; is nothing, in fact, but a symptom of scurvy, as I reasoned and wrote a twelvemonth ago, without then having referred to the old authors on the subject; is nothing, as I then said, but a serous hemorrhage into the alimentary canal, and what follows resultant phenomena; and everybody knows that hemorrhage of some sort is forever taking place in scurvy, is the pathognomonic sign of it; and why Dr. James Johnson did not mistrust the Cholera flux to be a scorbutic hemorrhage in 1833, when he wrote as follows, is matter of surprise now:

"Which diarrhœa is the first stage of a serous hemorrhage, and collapse the natural consequences of the loss of the serous part of the blood."

And again:

"The more we see of Cholera, the more we are convinced that the disease is a serous hemorrhage from the alimentary canal."—(*Medico-Chirurgical Review, Oct., 1833.*)

But let us see what the old authors say.

Ecthius, who wrote in 1541, more than three hundred years ago, says that—

"During the course of this disease [scurvy,] some are apt to be very coactive, while others have a continual diarrhœa." Italics as I find them in all these quotations. (*Lind on Scurvy, second edition, page 307.*)

Eugalenus, who published in the beginning of the seventeenth century; whose work has been recommended by the greatest authorities, Boerhaave, Hoffman, and others; the standard author for nearly two hundred years; sets down as symptoms of scurvy:

"Vomitings, retchings, and even the *Cholera morbus*." He says, "A vomiting is known to be scorbutic, 1st. By not yielding to the common medicines, and those prescribed by the ancients in this disorder; on the contrary, the patient becomes worse after using them: 2d, Its sudden, unaccountable remission, and equally unexpected return: 3d, Its seizing without any previous pain, disorder of the stomach, or distemper described by the ancients." (*Ibid, page 329.*) Just the kind of vomiting seen in epidemic Cholera. "Convulsion, [that is cramp,] of a particular part."—(*Ibid, page 331.*) "Copious sweats."—(*Ibid, page 333.*)

Cholera in every particular; and two hundred and fifty years ago these phenomena were emphatically and clearly diagnosed as symptoms of scurvy; not the most common symptoms of scurvy, by any means, but masking symptoms,

liable to mislead, and therefore this author points out the diagnostic marks of a *scorbutic* vomiting. And never was the suddenly-seizing vomiting of Asiatic Cholera without warning, and all right again after it, often seen, better or more graphically described.

Vander Mye, in his description of the scurvy as it appeared in the siege of Breda, 1627, says :

"The disease was seldom accompanied with a fever, but frequently with a dysentery, or other flux of the belly. * * There were frequent *retchings*, and recurring anxieties. Of those who were afflicted with the *diarrhoea* and dysentery, few escaped. * * * The discharges of the belly in this disease were indeed commonly watery and greasy, [rice water discharges,] but a flux did not relieve the malady. * * In a word, whether the disease was protracted to a longer or shorter period, most died from an internal fault in the *abdomen*; the flux proving rather a pathognomic sign of the scurvy than a critical and salutary discharge. [Hear!] It was before observed, the scurvy broke out about the equinox. At this time the dysentery and other fluxes of the belly were so trifling and uncommon, that we gave no attention to them, directing our whole care to remove the disease itself."

The account states that about two months later, say last of May, or first of June :

"Sordid fluxes of the belly, dropsies, and every species of distress, '*omne chaos morborum*,' afflict them, a great mortality proceeding this way. The physicians, at this time, giving up entirely with the cure of the disease, direct their whole art to remove the flux, and alleviate the more pressing symptoms."—(*Ibid*, page 344-47.)

Here was epidemic Cholera breaking out atop of scurvy under solstitial influences, according to this author; or the choleric passion was the wholesale finishing stroke of scurvy, to the besieged city of Breda. Have I need to go further to prove the identity of Cholera and scurvy? Is it true, as some assert, that I have adopted a theory, and bend and distort facts to sustain it? No, I could go on and quote from a dozen authors similar proofs, all straight and parallel with my views. Lind, Drawitzs, Timæus, Willis, Moellenbroeck, Charleton, Pitcairn, Boerhaave, Nitzsch, Ellis, and others, all speak of some of the choleric phenomena as being symptoms of scurvy; that is, "vomiting and purging—convulsive contractions, [cramp]—stoppage of urine—suffocative asthma—coma somnolentium—illiac passion—atrophia—spots, exanthemata—fluxes with or without blood"—every symptom ever seen in any stage of the Cholera. These are their terms used, some giving one class of symptoms, and some another; it is not necessary for me to copy out their descriptions in full; the reader will find them in Lind on scurvy.

One says, "It might be a fit task for *Jove* himself to give an accurate account of the scurvy and all its symptoms;" and another makes it "a most universal disease, a calamity

common to all mankind;" while a third enumerates most of the diseases flesh is heir to, or rather *symptoms of disease*, from the illiac passion to the toothache, as proceeding from scurvy. If this be true, Dr. Rush was quite right in declaring disease a unit; and Broussais in locating its seat in the stomach; intelligible now; and Dr. Barnes may well say, this, that, and the other fever, ache, and ailment, are but epi-phenomena of scorbutus; but whether or not it be true of all forms of disease, (which I leave as I find it,) it is God's eternal truth as regards Cholera, if the testimony of all the old authors is reliable, and some of the moderns have not grown wiser.

Dr. Good, who wrote only about thirty years ago, says:

"The precursive symptoms of scurvy are lassitude, faintness, and pains in the limbs. * * * After this there are often shiverings, *nausea* and vomiting," (*Study of Medicine*, vol. 3, page 445) by which it is proved equally true according to reliable modern testimony, that vomiting is common in scurvy.

It is not necessary to pursue the matter farther; those who cannot see the identity of Cholera and scurvy from these quotations, and all the facts I have adduced to prove it, would not be likely to acknowledge it though their patients were to rise from the dead and assert it: they would still probably hold that Cholera is Cholera, and impute its cause to some hypothesis, some poison in the air, rather than to *defective alimentation*, in the rational way I have shown. If fungous gums and fixed genuflexions are the *only* manifestations of scurvy, my theory is fallacious; but if its gastric seat and constitutional vice are acknowledged, my theory stands; for by it every mystery that has enshrouded Cholera is cleared up.

I commend the subject to the consideration of the profession, and respectfully suggest to the medical press that it may not be a lost service to the interests of science and humanity, may not be unworthy of the time and space required to give, at least, a brief synopsis of my views, that readers at large may be advised there is such an explanation of Cholera out. Pronouncing it "simply absurd," as—no matter who has done, does not make it so. The opinion of that cloistered journalist is of no great consequence, perhaps, on a question in practical medicine; but still no one who caters for the medical public in this day, can faithfully discharge his duty as an editor by snubbing investigations into the nature of Cholera, or any other fell scourge. If he can show the fallacy of my theory by the substitution of a more rational one, well and good: if any one in the profession can, let him set about it. The sooner he performs the task,

the better. There is no higher problem for solution. Truth is all I am in search of—the cause of science and humanity my honest and sincere end and aim; and there is but *one* true explanation of Cholera. The endorsement of my views by some of the best minds in the profession is encouraging. What other theory of Cholera ever gained a professional proselyte? Not one. I am told, by here and there a member of the profession, that outside of my views there is no light; and that I can well afford to wait the developments of time in the settlement of the question in the mind of the age. True, but science and humanity cannot—the honor of American medicine cannot—the thousands annually falling victims ought not to be debarred the knowledge of a rational prophylaxis. The matter, then, is too important to be cast off with a shrug, and an ugh! or laid on the table with a look of supercilious wisdom; or “damned with faint praise.” The question whether or not I have made a discovery, have contributed a positive addition to the sum of human knowledge, must be met. In what way or manner the profession may see fit to settle the question is not for me to say. I respectfully asked the appointment of a commission by the American Medical Association, at their meeting in May last, but the reference was refused, the subject (in the hurry of business I must charitably believe) not being deemed of sufficient importance! So I sent the essay, with the like request, to each of the five chief governments of Europe, and am not without indications that the subject may engage the attention of commissions abroad. No matter where, so the subject comes before a competent commission. In the meantime, I shall continue my researches, and most respectfully invite those physicians into whose hands this pamphlet may fall, and who may think favorably enough of my theory to try it in practice, to address to me the results of their observations.

I ought, perhaps, before I close this Appendix, to say a word on the question mooted in the conclusion of the body of the essay, “Why scurvy is thus modified,” and which I said would be a subject for future reflection. I think I have now shown that the choleric phenomena have always been symptoms of scurvy, or for the last three hundred years, at all events. I have shown too that the symptoms of scurvy have been inconstant throughout this long period; sometimes the gum and leg symptoms being pathognomonic of it, and sometimes the watery fluxes of the belly—vomiting and purging. I have shown too, by modern observers, living witnesses, Dr. Ritchie, of Glasgow, and others, that the gum and leg symptoms are often wanting in these days.

Eugalenus explained this, "it often killed the patient before these symptoms appeared," and he puts down in italics, "*the Cholera morbus*" as a manifestation of scurvy; tells us how a vomiting may be known to be scorbutic, describing the kind or mode of vomiting peculiar to epidemic Cholera accurately; and Vander Mye, the Dutchman, describes an epidemic manifestation of scurvy, characterized by vomiting and purging scorbutic fluids, "pathognomonic of scurvy"—fluids exactly resembling rice water Cholera discharges; developed under summer heat in the besieged city of Breda—a *fac simile* of an epidemic of Asiatic Cholera, out and out:

"The States of Holland had taken care to provide this city for a siege with rye, cheese, and dried fish, [Cholera provisions]. The cheese and fish had, at times, been changed, but their stock of rye not for thirty years. [Hear, hear!] Thence it was become quite spoiled and musty."—(*Lind on Scurvy*, second edition, page 241.)

The city was held in a state of famine ten months by the siege, and when summer heat came on, the scurvy having been epidemic two or three months, the scorbutic watery flux, *alias* Cholera, broke out, and eclipsed all other top symptoms, proving so mortal, that the doomed city was forced to capitulate about midsummer. It appears to me that after this exposition, there is not much modification of scurvy to be explained, as it appears now-a-days in Cholera. It was pretty much the same thing in Dutch then that it now is in English; and until it can be shown that some other remedies are more efficacious than the anti-scorbutics I have recommended, viz., lemon juice, brandy, morphine, quinine, soda powders, etc., I respectfully commend the administration of them to practitioners—acids, tonics, astringents, opiates, and stimulants, are the rational remedies, followed up quickly with wholesome nutrition. Until, then, my theory is disproved, and shown to be fallacious by the substitution of a more rational one (a moral impossibility I trow,) It must stand as the true explanation of Cholera, to the great joy of the profession, and all mankind.

ADDENDA.

EXTRACT FROM BISSET'S TREATISE ON SCURVY.—"The companies of ships of war," says Bisset, "in their passage to *Jamaica*, being advanced near the tropic, the solid fibres chiefly at the surface of the body suffer an extraordinary expansion, and consequent relaxation; and the fluids are rarified: an effect being produced similar to that of the dry bath, by the sudden increment of the solar heat. As they advance more southerly a propensity to sweating increases; the veins, however, at length begin to subside, the circulation slackens, the complexion fades, the appetite is a little impaired, the strength and

sweating diminish, and the first symptoms of scurvy appear. As they advance further in their passage the symptoms are aggravated, the sweat becomes viscid and scanty, and can be forced now only by hard labor, or the heat of the *orlope* air; and when these causes cease, is quickly dried up. About this time some continued and remitting fevers often appear. These are fatal only as commonly terminating in the most swift and fatal species of the scurvy. If a ship makes a quick summer passage to *Jamaica*, the crew will not be liable to the disease; yet, if ordered out upon a long cruise before *November* following, the scurvy will probably appear, especially if they are invaded by the bilious fever. After *October* it will seldom appear epidemical, especially if they arrived soon after the vernal equinox; for the scurvy seldom appears in the *West Indies* in the winter. Negroes, Creoles and seasoned Europeans are not obnoxious to the bilious fever, and seldom to the scurvy. * * * * *

"The fifth species, the most malignant and fatal, is commonly preceded by a continued or remitting fever, and sometimes the second and third species degenerate into it, especially if supervened by any degree or species of fever. It is attended sometimes with a slow, continued, remitting or irregular intermitting fever and drought. Its progress is swift. It is sometimes formed by a complication of the scurvy, with the cachexy from an intermittent; and it is generally this species which succeeds fevers at sea. Two cases occurred wherein the *diuresis* was much impaired, with thick, turbid urine, and sometimes a spurious *ischuria*; in both, the disease quickly increased with profuse hemorrhages at times from the nose. Such hemorrhages, however, do not often occur, a cough scarce ever, nor any considerable *dyspnea* in the scurvy in the *West Indies*: nor did the author ever see one case of luxuriant spongy flesh arising from the gums.

"Persons under a manifest scurvy are not invaded with the bilious fever; yet this fever often attacks them when highly predisposed to the scurvy, as also when recovering from it, in both cases proving very fatal."—(*Lind* p. 450.)

EXTRACT FROM DR. COOK'S LETTER. "When I came home to this country," says Dr. Cook, "I found the denomination of *nervous disorders* universally applied to most chronic and cachectic ailments. Upon examining those complaints in the lower sort of people, who live entirely on the farines and a gross diet, I observed they had a universal lassitude, pains which they termed *rheumatic* flying through their body, and a breathlessness upon using exercise. The legs were sometimes swelled, and the *abdomen* almost always tense and tumified. But whether they had swelling or not, they had generally an ill-colored scorbutic complexion, and were listless and inactive to a great degree, with complaints of pains in their jaws, teeth, etc. I made no scruple to pronounce such cases scorbutic; and by proper anti-scorbutic regimen, medicines, diet, and exercise, seldom failed to give very sensible relief. I have disoblighed many patients by saying they had the scurvy; a disease as hateful as it is unknown in this part of the world; but the relief they obtained from anti-scorbutics soon convinced both them and myself that their cases were not mistaken."—*Account of the Scurvy in Russia Ibid* p. 281.)

ESSAY
ON
CHOLERA INFANTUM.

BY M. L. KNAPP, M. D.

Entered according to the Act of Congress, in the year 1864, by
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ON

CHOLERA INFANTUM.

DISSENTING from the views of writers in general, who consider Cholera Infantum a form of disease *sui generis*, and especially from those American authors, who treat of it as a disease peculiar to this country; I hold, that Cholera Infantum differs in nothing that is essential in its nature, or pathognomonic in its character, from the Asiatic or Epidemic Cholera of adults; or in other words, that the hitherto supposed two forms of disease are one and the same, produced by the same cause or causes, the phenomena differing somewhat on account of age; and I furthermore hold, that the disease is essentially a scorbutic affection. Entertaining these views or opinions, I proceed to offer the reasons for holding them, and to set forth the principal data on which my conclusions are based.

EVIDENCES DERIVED FROM ITS HISTORY.

The tender organization of the infantile system, under the usual efforts of nature to remove irritation, obstruction, and all forms of disease, manifests phenomena differing more or less from the symptoms or efforts of nature observed in adults laboring under the same diseases. There is no truth in practical medicine better understood and established than this, and none that deservedly holds a more controlling influence over the practitioner in diagnosing the diseases of children, or in the adaptation of therapeutics to infants. Making application, then, of this truth or first principle to

the proposition above advanced, that Epidemic Cholera and Cholera Infantum are essentially the same disease, the differences in the course and symptoms of infant and adult Cholera are rationally explained on sound and well-established principles of medical philosophy. The great similarity in the phenomena of the supposed two diseases has not escaped the observation of the profession, and has been more or less spoken of by authors in treating of Cholera Infantum, but as this malady has been prevalent in the cities of the United States every summer, probably, since the days of Rush, and long before, even since the earliest records of our cities, and the Asiatic Cholera of adults never supposed to exist as an epidemic here till it made its appearance in the summer of 1832, it is not surprising that sporadic or endemic cholera-morbus should be held to be the prototype of Cholera Infantum, and the stranger or new comer, the Asiatic Cholera, a new disease, or at least, a new variety of Cholera.

In Europe, Cholera Infantum is comparatively but little known, at least by this appellation, and, probably, no similar form of disease rages among infants there, of the same severity, regularly becoming epidemic every summer; and for the reason that the winters are warmer and the summers cooler than in the United States, meteoric influences, or extreme thermometrical impressions, from the swing of the seasons, being the great exciting causes, after a faulty alimentation or assimilation has remotely inlaid and accumulated the scorbutic diathesis or depravity in the system.

This disease, however, is by no means unknown in Europe, and, probably, in no part of the world. It is treated of as *Choleric Fever of Infants* by Copland; as *Follicular Enteritis* by Billard; and as *Enteritis of Children*, including inflammation, softening, diarrhoea, etc., by some other French writers. Cruveilheir has described it under the name of *Maladie gastro-intestinale des Enfants avec des-organization gelatineforme*—the mucous membrane reduced to a spongy pulp, quite characteristic of scorbutus. This accords with the German and Prussian view of the nature of the disease, in which countries it is denominated *Gastro*

malacia. The *Dublin Treatise*, by Evanson and Maunsel, denominates it a *species of Cholera*, and says it is often met with in Ireland in the autumnal months. According to Dunglisson's experience, "it is not an uncommon disease in London, and strikingly resembles the affection vulgarly called '*Watery Gripes*,' in England."

If my view of its nature be correct, its greater prevalence in some countries than in others is rationally accounted for on climatic principles; those countries suffering least, *ceteris paribus*, that enjoy the most equable climate, which is conformable to the known laws of scurvy. This view also explains the nature of the anatomical lesions, and also the discrepant views of authors as to the inflammatory or non-inflammatory character of the disease—the softened, congested, ecchymosed and ulcerated states of the mucous structures. The swollen condition of the gums, so much spoken of, and for which lancing is so generally inculcated, is often but the hyperæmia and commencing tumefaction that precedes sponginess, so characteristic of scurvy. The same tendency to softening, sponginess, hyperæmia and congestion, extending through the *primæ viæ*, explains all the phenomena—the varied symptoms and anatomical characters. The disease being a lesion of nutrition, the structures immediately concerned in digestion and assimilation first give way. According to Horner, "the morbid derangements of the vascular and follicular structure of the mucous membrane, endowed with vital actions the most important to life, constitute the essential character of *Cholera Infantum*;" and these tissues first give way and puff up in scurvy, or, at all events, are the seat of the disease when *diarrhœa* characterizes it.*

Dr. Copland's definition of *Choleric Fever*—*Cholera Infantum* of Rush—is, 'vomiting and purging, with fever generally of the remittent type, [which is commonly the scorbutic type,] irregular spasmodic convulsions, and rapid

* "When the inert vapid serum is accumulated in the tunica cellulosa," says Nitzsch, see Lind on Scurvy, 2d ed. p. 421,) "an anasarca is induced; when within the substance of the lungs, an asthma, upon which a true hydrops pectoris ensues; when in the lower belly, an ascites per infiltrationem; and when in the glands of the guts, a diarrhœa."

emaciation, attacking infants and children," which definition, save in the age of the subjects, will answer with technical accuracy for Cholera Adultorum, to make use of the legitimate correlative term, for convenient contradistinction. The same author says, that "the subjects of Choleric Fever are infants of two or three weeks to several years of age, and that *after this period, the causes that produce it occasion Epidemic Cholera.*" This latter assertion which I have put in italics, though doubtless true, differs from all American writers consulted, who fail to light up the dark, unfathomed abyss of the essential nature, pathology and true cause of the disease, by assuming it to be the infantile mode of manifestation of Cholera morbus, an irritation believed to arise from a surfeit, or offending ingesta, especially the indulgence in acescent vegetables and fruits; and this apparently accidental stumbling upon the truth by Dr. Copland, is inconsistent with his own view, that Epidemic Cholera is propagated by contagion—no writer whatever, so far as I have consulted authorities, has supposed Cholera Infantum to originate from or to be propagated by contagion. The limit, "several years of age," set, at which Cholera Infantum retires, and Cholera Adultorum takes the field, is so palpably an arbitrary, forced, indefinite and unnatural limitation, and so useless and senseless if the cause producing both the infantile form in subjects over several years of age, and the adult form be the same, that it is a forcible commentary on the evil influence of nosology: still there is a great truth herein shadowed forth and maintained, viz., *the unity of causation of Cholera and Cholera Infantum*, which makes the supposed two diseases one in fact, *essentially the same*, differing in nothing, save as the symptoms are modified by the ages of the subjects—just what I hold.

Most of the American writers who treat of this scourge, not only maintain that it is peculiar to infants and children under five years of age, but some hold that it is peculiar to this country, and not known in Europe; and all hold to the stereotyped dogma, that it seldom occurs before the third month of infantile life, or after the fifth year. Dewees, if I remember correctly, cites an extraordinary instance, how-

ever, a case that occurred in a lad of eighteen years of age; and I can truly say that I have attended cases of well marked Cholera Infantum not only in children over five years of age, but over ten, twelve, or even eighteen; aye, I have treated repeatedly *mother and infant* laboring under it, and this too during the seasons when Cholera Adultorum was not epidemic: the same remittent, scorbutic type of fever; the same character of discharges, both by vomiting and purging, especially the unmistakably characteristic, greenish, foetid, watery stools; the same dry, wilted, withered, palid skin; the same attenuated, softened condition of the system, under a chronic holding on, or struggle of time, that is so characteristic of the affection often; in fine, the same disease as certainly as ague and fever occurring in mother and infant is the same, though the infant never shake under the rigor, and the mother nearly shake her teeth out.

All authors agree, however, that infants between six months and two years old, are, by far, most liable to be attacked; that is, during the period of primary dentition: and another fact in its history appears also to be well established, viz., that more deaths occur from it in infants under one year old than during the second year of age. From six to twelve months old, then, is the special age at which infants are carried off by this "*summer complaint*," which comprises those infants that have been subjected to the influences of one winter; enough, conjoined with the powerfully exciting influence of succeeding solstitial heat, to answer to the scorbutic law — an inlaying of disease during winter and spring from the absence of sufficient succulent vegetable food, to outbreak from any exciting causes whatever, but especially hot weather.

Besides, it is to be borne in mind that the weakly, the scrofulous, the offspring of poorly-fed, sickly parents, the early-orphaned, and bottle-fed infants, are the picked subjects—those deprived of the proper elements of nutrition, and those whose organs of digestion and assimilation could hardly manage or appropriate them if present. Now, as darkness results from the withdrawal of light, or cold from the abduction of heat, so scorbutus follows as a natural re-

sult of the withholding of the proper elements of nutrition, or an inability in the system to appropriate them.* Its latent accumulation in the kind of subjects, and under the circumstances spoken of, is as morally certain as that the sum of two and two is four, or that twilight and darkness follow sun-set; and it is only necessary to study the laws and history of scorbutus, to learn its terrific and collapsing tendencies, where, indeed, no evil was suspected; its Protean shapes of horror and woe, and its thousand and one shades and degrees of manifestation.

Fearing I am not yet fully understood, or that I have not sufficiently explained how this law operates in regard to infants, how scorbutus happens to be so especially inlaid in infants of from six to twelve months old, by the influence of *one* winter, I will explain the matter more fully now, least I pass it obscurely over.

It is a law in physiology, that the quality of a nurse's milk is good or bad according to her state of good or bad health, and the sufficiency and quality of her daily ingesta. The secretions answer to the ingesta in fifteen minutes, so physiologists say; and the nursing of an infant by a mother just after indulging an intense fit of anger, has, in fifteen minutes thrown the infant into convulsions, if I remember my rudiments correctly. Now it is the natural law that infants shall be nourished exclusively from the breasts of their mothers for the first six months, and few have cut their molar teeth, Nature's sure testimony of the infant's ability to dispense with the breast, before twelve or fifteen months of age. It follows, then, that the great majority of those dying of Cholera Infantum, if scorbutic, are rendered so from the bad quality of their mothers' breast-milk. Say, to average the matter, that nine months old is the fatal epoch with infants making their exit from life by Cholera Infantum, and

* Lind states, that in several orders of different religions, those who are obliged by way of penance to abstain a considerable time from food, perceive their breath become fetid, their teeth loose, their gums spongy and soft. The same symptoms are also observed in those who are starved to death; and these are the recognized and acknowledged commencing symptoms of scorbutus the world over.

that this occurs in July, the hottest month of summer: all of which is historically true, as shown by the tables. The whole class, then, thus averaged, must have been born in October, and were six months old in April, just the season when there is least succulent vegetable food to be had, and what remains is decayed, frosted, deteriorated in quality, and the more carefully preserved stores exorbitantly high in price, so that all poor families in the cities are obliged to do without succulent vegetables for many weeks, and to live on pork, peas, beans and coarse bread. Ten to one, through February, March, April and May, those families from which infants are snatched in July, are nearly destitute of succulent vegetable food; and milk, butter, poultry and *fresh meats* are then, also, very dear. To say nothing, then, of the co-operating influences of cold, insufficient clothing, damp, basement habitations, filth, foul air, etc. the nursing mothers' ingesta do not contain the necessary elements of nutrition, for maintaining their own health and supplying the proper elements of a wholesome nutrition through their milk to their infants. The soluble salts of iron for the blood, potash for the muscles, lime for the bones, etc., etc., the infants so especially require at this period of rapid growth, and which are elaborated *only* in vegetables and fruits, being left out of the mothers' dietary, they become scorbutic of course; their milk begins to fail in quantity when it should increase; and to become impoverished in quality when its elements should be richer; and thus emerging from the influences of one winter, the infants of such mothers are forced to subsist thence till the Ides of July, on stinted allowances of scorbutic milk, interlarded with innutritious arrow-root and other feculas, and crude aliments craved, such as fat pork and baked beans, the dietary of the family board. The natural consequence is, they begin to sicken and fall, as hot, debilitating weather comes on. All the early summer fruits, acids and vegetables are scrupulously interdicted, until their natural pantomime longings and cravings are such, that they are often to be seen gloating over a bad specimen of a June apple that accident or good luck may have cast in their way upon the floor; and they

would fain try their young incisors on an unripe damson plum, or even a persimmon.

The views I have adopted, then, of the nature of Cholera Infantum, are not irrational, and keeping them in mind, the history of this scourge of tender years, may, in many cases, be traced to the foetal state; and I doubt not thousands and tens of thousands of infants are born with the taint of the disease in their blood; aye, that the very germs of future infantile forms in ovario, are imbued with it, and also, the sperm which alone can wake a vivifying influence upon them. This is tracing its history farther back to be sure, than any writer hitherto may have done, but doubtless not beyond its legitimate remote origin, often, for I will show it to be hereditary. The ante-natal chapter in the history of Cholera Infantum, whether chronicled or not in medical books, is plainly inscribed on the tablets of infantile mortality, still-born and otherwise, that annually swell the death-waves in the entreports of the United States, into which cities thousands upon thousands of scorbutic emigrants are annually thrust, and who there beget numerous pestilence-stricken offspring, to perish of Cholera Infantum, under slight exciting causes; and where, also, multitudes of destitute, mongrel, squalid, native families are doing the same; crowded together in damp cellars and filthy tenements, living from hand to mouth on a crust and bacon-rind, alike deprived of the aliments from which healthy blood is produced, and a wholesome atmosphere by which alone it can be renovated.

Admitting my views to be correct, viz: that Cholera Infantum is the most common form in which scurvy manifests itself in infants, an explanation is thus afforded as to the silence of the older authors on Cholera Infantum, and of the modern authors on infantile scurvy. No modern author that I am aware of treats of scurvy as among the common diseases to which infants are subject, while Albertus declares that it is *most usual in children*, and is either a hereditary scurvy, or that which is got from the nurse. To be sure, Dr. Good asserts, that infants whose mothers are affected with scurvy participate in the disease, from the milk not

being sufficiently nutritious, but no author delineates the course and symptoms of the disease in infants, whom I have consulted, and to deduce the phenomena from the meagre descriptions of scurvy to be found in standard systems of practice, is a task not likely to be fulfilled by readers. Whilst the older authors then, as well as modern, are quite inexplicit as regards the symptoms of infantile scurvy, and yet leave no room to doubt, aye expressly assert its very common occurrence, most usual in children, says Albertus, and innutritious milk causing it in infants, according to Dr. Good, my views derive great support from the ancient-modern and more recent authorities. They harmonize wholly, for no disease of infants is more common than Cholera Infantum, and the picked subjects, as before asserted, are those poorly supported on innutritious milk. My views of its *ante-natal origin* too, are sustained by the old authors on scurvy. Pontopidan says of married persons who live together many years, the healthy is not infected though the other party has scurvy; but if they have children *they* sometimes take the infection, though not always. Sennertus asserts that the scurvy occasions a stoppage of the courses in women; in place of which they have a white, acrid, saltish running, apt to infect men; and that men from this disease are rendered unfit for generation, by having a watery, vitiated semen; and Reusnerus declares that scorbutical women are subject to the fluor albus and menses discolores. The Faculty of Physic at Copenhagen, say the scurvy is hereditary and infectious, and that a hereditary scurvy is seldom cured. Timæus says, he generally succeeded in the cure unless the scurvy was hereditary or very deeply rooted; and Hildanus publishes a letter from Ludov. Schmidt, giving an account of the Prince of Baden's youngest son, a child of fourteen months old, afflicted with the scurvy, who was cured with anti-scorbutics. All these facts bear very forcibly on the question of the identity of Cholera Infantum and infantile scurvy, and the reader, of course, will keep them in mind as he follows me in these researches. From the multitude of facts I will adduce, I doubt not every candid reader will come to the conclusions at which I have arrived on this subject, novel and strange as my views may seem at first thought.

The mortality in the city of New York, from Cholera Infantum during the last fifty years, according to the Semi-centennial Report of the City Inspector, numbers 14,968 souls: an average of almost 300 a year. The highest mortality in any given year was 926, which occurred in 1849, the year of the greatest mortality from Cholera Adultorum; and the lowest mortality in any year occurred in 1816, when only *one* death from this cause appears on the face of the Report. That summer, according to my remembrance, was a very cool one: the previous winter, I infer, must have been a mild one, and the previous summer a highly fruitful and productive one. The latter inferences, however, I have no means of verifying, for want of agricultural statistics, and meteorological tables.

It is said that in the sea-ports of the United States, further to the south, the mortality from this scourge is even greater in proportion to the population than in New York.

The mortality from the disease in Philadelphia, during a period of fifteen years, from 1825 to 1839, inclusive, was 3,576, according to Dr. Condie; an average of 238 per annum.

In Baltimore, during the year 1853, Cholera Adultorum not epidemic, the mortality from Cholera Infantum was 256; while in 1854, adult Cholera being sub-epidemic in most of the cities of the United States, it was 495.

In Boston, the disease is said to be comparatively much milder and less mortal, doubtless because there is much less poverty and destitution there.

In New Orleans, St. Louis, Cincinnati, Chicago, and Buffalo, the ravages of the disease are great; and the mortality appears to be the greatest, uniformly, in the cities most largely peopled with immigrants.

All writers agree that this destructive pestilence is mostly confined to the hot season of the year, creeping into activity as the spring and summer heat comes on, and declining as it goes off in autumn.* In its epidemic manifestations,

* It appears by the monthly reports of the Board of Health, of the city of New York, for the year 1853, that the deaths from Cholera Infantum during each month of the year were as follows—viz., January 2; February 2; March 2; April 2; May 10; June 117; July 308; August 316; September 115; October 37; November 5; December 8.

therefore, it conforms to the general laws that govern Cholera Adultorum, and also scorbutus.* Another remarkable feature in its history is, that it prevails epidemically in the *cities* and not in the *country*, conforming again to the law of its great prototype, and also to the law of scorbutus. Much speculation has been offered as to its etiology from the uniformity of these laws. That high summer heat and unwholesome habitation in the confined, foul air of the cities, are, in some way, concerned in its production is evident, and admitted by all writers, but in what way or manner none have clearly explained. The same degree of heat does not affect country children in the same way, and I venture to affirm would not under an equal deterioration of the air; and for the reason that country people have usually an abundance of succulent vegetable food, fruits, and good fresh cows' milk, and an epidemic scorbutic diathesis is impossible under such a dietary. Now and then a sporadic case occurs, to be sure, in the country, particularly in the so-called malarious districts, where the assimilating functions are impaired, and it is thought, by some writers in the United States, to be a malarious fever, the force of which is turned inwards upon the bowels; so strangely is the human mind prone to hypothesis. One circumstance of importance in its history should be noticed here. The prevalence of the disease is not always in the ratio of the intensity of the summer heat, the great exciting cause, proving my view—proving that it is caused rather by defective diet. The Philadelphia statistics of Dr. Emerson, arranged in tabular form by Dr. J. Forsyth Meigs, (*Diseases of Children*, p. 290,) settle the matter conclusively, that the disease is not developed in the ratio of the intensity of summer heat. This table shows that in 1815, the mean temperature of the three summer months being 76° F.,

* Dr. Cook, who has taken particular note of the epidemic manifestation of scorbutus as it appeared in successive years in Russia and Tartary, says that it generally breaks out in the latter end of February; that it is often complicated with agues, dropsies, phthisis, etc.; that the violence of the epidemic seldom continues after the middle of July, *except in complicated cases*; that from August to October agues raged with more violence than ever; that *fluxes* then succeeded, and universal sore throats *among children* followed.

only 92 deaths occurred from Cholera Infantum, while in 1814, the mean temperature being but 70° F., there were 125 deaths. And again it is matter of fact, that in 1825, the hottest summer known in the United States, the mortality from Cholera Infantum in the city of New York was less by over one-third than it was the following summer, 1826; and this season, though a trifle less hot only, still revealed a less mortality again from Cholera Infantum than the summer of 1827, which was much cooler than either; one of medium temperature only. The laws of causation of the disease, then, cannot be explained by heat alone, nor by heat and foul air united, though the combined influence of these depressing agents, as modified in cities, is held by all writers to produce it; poor diet, and especially free indulgence in fruits, co-operating; all of which, though containing some truth in the abstract, still, as hitherto explained, reveals nothing as to the nature and pathology of the disease, or the indications to be fulfilled in the treatment. The view I maintain, that a faulty alimentation either in the parents or child, impoverishes the blood as the *remote cause*, inlaying a greater or less degree of the scorbutic diathesis, to be developed by heat, foul air, errors in diet, and other exciting causes, makes this hitherto obscure matter clear, and indicates the proper remedial course to pursue—the rational treatment by acids, fruits, and a highly nutritious dietary.

EXTRAORDINARY SEASONS—PESTILENTIAL YEARS.

It appears, then from what seems to me to be a rational interpretation of Nature's laws, in the matter, that this "*summer complaint*" of infants, as it is popularly called, is greatly the result of *wintry* influences, or those causes that destroy, blight or abridge the vital stimulus of succulent vegetable food, rather than the offspring of an abstract, hypothetical malaria, or summer-concocted compound of heat, trespass in fruit eating, and the foul air breathed in crowded lanes and alleys of cities; as I proceed to show more clearly by the constitution of the seasons of certain remarkable years, and the statistics of the mortality from Cholera Infantum during those years.

The winter of 1831-32 (to begin with the calendar of years most remarkable in the category) was one of extreme rigor. The previous winter also, had been one of the same constitution, characterized by deep snows and long and severe cold weather, though not so universally inclement all over the United States as the winter of 1831-32. The Mississippi River was frozen over during that winter, however, 130 miles below the mouth of the Ohio, a circumstance before unknown since the settlement of the western States; but the winter of 1831-32 surpassed it greatly, the mercury in the thermometer sinking to 20 degrees below zero on several occasions in the Mississippi valley, north of 40 degrees of north latitude, and in the northern States of the Union and Canada to near the degree of congelation. In the New England States, according to Dr. Holyoke's Journal, the mean temperature of the winter was colder by three degrees than the coldest winter that had occurred from 1786 to 1828, a period of 42 years. The intermediate summer of 1831, between these two cold winters, was characterized by excessive heat and floods. The quantity of rain that fell was nearly double the amount that fell in the summer of 1832, and more than double the quantity that fell in either of three preceding summers of 1828, 1829 or 1830. "In consequence of this abundance of rain, various kinds of produce suffered greatly, Wheat vegetated in the field, in some instances before it was cut, and in many cases afterwards." In the spring of 1832, excessive floods again occurred, from the melting of the snows, which had fallen in the middle States to four feet in depth. The rivers were swollen to a greater height by some five or six feet than in any flood since the most remarkable one chronicled in the history of the United States, viz., that of 1784.—(*American Almanac*, 1834, p. 83.)

Thus, to the frosting of the family vegetable stores by the intense frosts of two winters in succession, were added clustering causes of blight during those remarkable years, viz: a summer of scorching heat, floods and inundations with immense agricultural losses, and the ruination of crops—precursors of epidemics the world over, and particularly epidemics of the scorbutic or petechial type; and in illustra-

tion, the records show that the deaths from Cholera Infantum in New York in the cool, pleasant, dry, very fruitful and constitutionally *per se* salubrious summer of 1832, following that chapter of "moving accidents by flood and field," amounted to 334; while in the very hot, damp, preceding summer, there were only 172, and in the summer following after that fruitful year and abundant vegetation, the summer of 1833, only 129!

Never before, it appears, had the mortality in New York from this disease, in any one year, amounted to over 172, the record for 1831, since the years 1804 and 1805 (the constitution of the seasons of which I have no source of reference at hand for ascertaining) except in the years 1826 and 1827, when the mortality reached 222 in the former, and 238 in the latter. Now it is matter of history that the summer of 1825 was the hottest of which there is record in the United States; and the succeeding summer of 1826, was within a fraction of the same mean temperature, both being above 83 ° F. Philadelphia observation—two successive seasons of short crops from prolonged heat and drought, unquestionably, for seasons of this scorching character always abridge the latter harvests; and to follow up the causes of the pestilence, so prevalent in all the cities during the thermometric succession of those remarkable years, the winter of 1826–27, was one of nearly the coldest character, the mean temperature of January being down to 26 ° 60' F. at Philadelphia; only some three degrees less rigorous than the coldest month, December, in the winter of 1831–32, which was of the mean temperature of 23 ° 35' F. It is well, for comparison, to post up the mortality immediately before and after those fatal years: thus in the hottest summer on record in the United States, 1825, the deaths from Cholera Infantum in New York were only 151, and in 1828 only 167, to contrast with 222 in 1826, and 238 in 1827, as before stated. Some other baneful influence, therefore, besides summer heat, the foul air of cities, and concurrent indiscretions in the use of fruits, must be conceded to have been operative in the causation of the epidemics of Cholera Infantum in 1826 and 1827.

Again, the winter of 1833-34 was characterized by exceedingly rigorous weather; the mean temperature, 29° F., of the month of January, 1834, was one degree below the mean temperature of January, 1832, but the balance of the winter, except the early part of February, was rather mild. It does not appear to be a law, according to the statistics, that prolonged, rather low winter temperature, giving a low mean for the whole winter, is so mischievous or detrimental to the public health, as extremely sharp, cold spells of mercury-freezing weather and untimely frosts in the spring, the former of which reach the cellars, store-houses, and depositories of laid-up succulent food, while the latter nip in the bud, or blast before maturity, the growing crops; which will serve to explain, on rational principles, the extraordinary force of epidemic Cholera Infantum, presently to be noted by statistics, in 1834, and also in other years, the precise constitution of the seasons of which may be forgotten. Added to the extremely sharp, cold weather in January and February, 1834, sufficiently intense to close the Mississippi with ice *twice*, to the mouth of the Ohio, there occurred a *general blight in vegetation* in the month of May of that year, destroying to an unheard-of extent the fruits and garden vegetables of the season; and the summer of 1834 was characterized by a temperature considerably above the average mean—it was a hot summer—it closed hot and dry after early and midsummer deluging rains. The mortality from Cholera Infantum in New York in 1834 was 475 to contrast with 129 (more than treble) that of the previous year, and 231 (more than double) that of the year following!

The winter of 1837-38 was the climax of a series of cold winters; and the summer of 1838 was characterized by excessive heat and drought. A vast amount of general sickness in all parts of the United States marked those years, especially the malarious, typhus and exanthematous fevers, and whooping cough. The scurvy broke out in its old-fashioned or recognized form in some ports and prisons—the *nursing sore mouth*, so called, (land scurvy not recognized,) prevailed sporadically, and even sub-epidemically in pregnant and nursing women, in various localities of the United

States, particularly in the new settlements, where horticulture and fruit-growing had made but little progress—many of the infants of mothers so affected inherited or imbibed it, and died of *Cholera Infantum*, (and scurvy in infants,) in the rural districts of the newly-settled States, where the writer has seen it prevail epidemically, notwithstanding it is thought generally to be confined to the cities. And in proof of the country prevalence of *Cholera Infantum* in new settlements, I quote from *Gallup on Epidemics*, p. 75, whose historical sketch of the prevailing diseases in the newly-settled State of Vermont, from the peace of 1783 to 1815, is before me. Reviewing the great mortality of the year 1813, which, he says, “ushered in the most severe epidemic disease that ever afflicted the inhabitants of Vermont, the epidemic peripneumony,” Dr. Gallup closes the summary of that year with the following remarks: “In the latter part of the summer and first winter months, a considerable number of cases of typhus fever occurred; also several cases of *Cholera Infantum*. This last disease has prevailed more or less almost every summer, although it has not been particularly noticed before now.”

The winters of the years 1836, 1837 and 1838 were *locally* severe, so to express it, in different years, throughout the Union, but not so universally severe, sharp, or blighting in any one year in all parts of the United States as the winters of certain other years have been, nor were the years marked by the universally excessive snows, rains and floods, that characterized 1831 and 1832. The mean temperature of this series of cold winters was about as low, and in some instances even lower, than the winter of 1831–32; but I have not been able to reach any statistics of the weather that give a lower temperature during the whole series than 12° below zero, which occurred on the 17th of February, 1838; and the observations were made at Dartmouth College, New Hampshire, in one of the most northern States; in which latitude the mercury sank to near 40° below zero in 1831–32.

A similar constitution of the seasons prevailed in Great Britain in 1837 and 1838, it appears, for Dr. Budd, (*Tw Weedie's Practice, Article Scorbutus*.) in illustrating his views that

a scorbutic *taint* occurs *generally* in the poorer classes in cities after cold winters, speaks of "the extraordinary prevalence of typhus in the *severe winter* of 1837-38, and of the petechial character of that epidemic."

Upon the whole, then, in a review of the constitution of the seasons of this series of years, it does not appear that the pestilential influences resulting from the abridgement of vegetable food, by the severe frosts of winter destroying the laid-up stores, or untimely spring frosts blighting the crops and fruits, were sufficient for the production of a general epidemic of the choleric type among adults, as in 1832 and 1834; though, as before mentioned, there was a vast amount of other forms and types of disease, some cases of Cholera Adultorum, and Cholera Infantum was strongly epidemic. In glancing at the statistics of the mortality from Cholera Infantum in New York, during those years, a large increase is noticed for 1836, 1837 and 1838 and the maximum mortality occurred in the last year of the series, in the excessively hot and dry summer of 1838, after the climacteric cold winter of 1837-38. To post up, again, for comparison, the ledger stands thus: in 1835, the deaths were 231; in 1836, 280; in 1837, 253; and in 1838, 437!

Not to dwell on minor illustrations, the years 1844, 1845 and 1846, presented another series, remarkable for their meteoric character, and ending in a mortal climax, again, in the year following, 1847.

The ball had begun to roll in the spring of 1843, which was exceedingly unfavorable for planting, being retarded by cold for nearly a month behind season. The winter of 1843-44 was characterized by a low mean temperature, 31 degrees, and by sudden and frequent vicissitudes. The winter of 1844-45 was not remarkably cold, but that of 1845-46 was very cold, the mean temperature being 30 degrees; the winter of 1846-47 was the mildest of the series, fortunately, or the climax of consequences would have been even more remarkable. But the springs and summers of those years were characterized either by excessive rains, floods, deluges and disasters to crops, or droughts and blights, to the great abridgement of production. The general constitution of the

seasons of those remarkable years is well remembered, and the extraordinary amount of general sickness, again, that prevailed in the United States, is too prominent a fact not to be remembered by those, even, who took less note of the meteoric phenomena. It is worthy of remark again, that a similar constitution of the seasons prevailed in Great Britain and Ireland, as the potato blight, Irish famine, and scurvy and Cholera of those years attest. Much was said in the public prints, of the potato blight in the United States; still those disastrous years, on this side of the Atlantic, were not so universally overwhelming in the pernicious impression of the abridgement of succulent food as to produce a general epidemic of the choleric type in adults, whose capability of endurance is much greater than that of infants. Had the last winter of the series, that of 1846-47, been remarkably sharp and cold, following the excessively hot and dry summer and autumn of 1846, doubtless Cholera Adultorum would have been epidemic in most of the cities of the United States, for the scorbutic diathesis was very prevalent in the bed-side observations of the writer: the Asiatic Cholera was sporadic, and Cholera Infantum was strongly epidemic. The mortality from this scourge in New York, in 1847, was 692, to contrast with 527 of the previous year, and 505 of the year following; or, more fully, in 1844 the deaths were 375; in 1845, 563; in 1846, 527; in 1847, 692; in 1848, 505.

Pursuing the calendars of evil years, that of 1849 was the next in order. The winter of 1848-49 was a very long, cold and snowy winter. In the latitude of 42° in the Mississippi valley, it set in with a snow-storm on the first week of November, and continued till the latter part of March. The mean temperature of the months of January and February was lower than that of the corresponding months of the memorable winter of 1832: the mean temperature of February was $26^{\circ} 52'$ within three degrees of the mean temperature of the coldest month, December, of the winter 1831-32—New York observation, which is the case in all instances, unless otherwise expressed. It appears, compared with other years, to have been more severe in the northern and western portions of the Union, and to have increased in its remark-

able inclemency onward to the Pacific Ocean; for Colonel Fremont, of the United States Army, encountered snow forty feet deep in his perilous and fatal explorations of the South-Pass route over the Rocky Mountains to California, the men and mules of his party mostly freezing to death! and the St. Louis Republican of the 30th of March of that year says, "it learns from Captain Vanvleit, of the United States Army, direct from Fort Childs, on the Platte River, that the winter has been one of extraordinary severity, the snow deeper, and the cold more intense, than was ever known by the oldest (Indian) residents." (*Cincinnati Gazette*, April, 1849.) South of the snowy latitudes, say about the Fortieth parallel, vast quantities of rain fell, and the rivers kept high and full of running ice. Throughout the fall, winter and spring, the Ohio River and its tributaries were never, probably, so long continuously swollen by rains. In the southern States the earlier half of the winter was wet, hot and sultry, but in the latter half extremely sharp and cold. This gives the correct general character of the winter. The spring opened late in March with tremendous floods throughout the Mississippi valley; destruction of property, bridges, mills, canals, shipping, etc., especially in the north-western regions; and tornados, inundations, crevasses in the Mississippi, and ruination of plantations and crops in the more southern regions. But the *black frost* of the spring cap the climax of the fatal causes of the awful summer Cholera epidemic of that year; which blight occurred late in the month of April, and killed all the fruit, save a few stunted apples, to the south of about 41° of north latitude, and all the salads, greens, and early garden vegetables; yet no note has ever been taken of this by any writer except myself, in any researches or reports made upon the cause or nature of Cholera or Cholera Infantum! If the interdiction of fruits and vegetables in Cholera seasons, as held and enjoined by the profession, be right, their wholesale destruction by a general blight should prove a blessing; but in this review of years and of seasons, the relation of blight and Cholera seems to stand like that of cause and effect. It is well to support views of so innovating a character by authorities.

"On Friday evening last, the weather began to grow unusually cold. Saturday was quite cold, and on Sunday evening the thermometer had sunk to freezing point; and by Monday morning it was 7° below freezing point. It is believed that every species of fruit is killed."—(*Hamilton, O., Intelligencer, April 19, 1849.*)

A considerable fall of snow occurred, and in speaking of the snow-storm, the same newspaper notices a remarkable coincidence, that "exactly one year ago, April 18, 1848, a violent snow-storm visited the whole western country in our latitude."

"*The Weather—Fruit Destroyed.*—The sudden change from warm, spring weather to cold, winter weather, which took place on Sunday last, has destroyed nearly all the fruit in this vicinity, and in the adjacent parts of Ohio, Indiana and Kentucky. Every species of tree-fruit is taken, except late blooming apples. In addition to this, even grapes are so much damaged in this vicinity, as to leave but little hope of anything beyond the most meager vintage. Shoots from one to three inches long, with the fruit-bud well formed, which four or five days ago looked as luxuriant as we have ever seen them at this season of the year, now hang black and dry, and crumble to the touch.

"At Louisville, Ky., on Saturday night, the thermometer fell to 24°. In this city on Monday it stood at 26°, and on the hills west of the city was down to about 24°.

"The sky has been overcast most of the time since the change, a dry wind has prevailed, and we have had but little hoar frost."—(*Cincinnati Gazette, April 19th, 1849.*)

"*Telegraphed.*—Philadelphia, April 23, 1849—Advices from the south state that nearly the whole cotton and grain crops are destroyed by the frost."—(*Daily Paper above cited, April 24, 1849.*)

"*Cold Weather South.*—The Charlestown (Virginia) *Free Press* says, 'The late severe weather has destroyed all prospects of fruit for the present year, especially peaches.'

"The Wilmington (North Carolina) *Chronicle* says, 'We fear this storm has occasioned general destruction, in all this region, to the farm fruit and early vegetables.'

"In Charleston and Columbia, South Carolina, and Augusta and Savannah, (Georgia,) snow fell to the depth of several inches.—Editors regaled themselves with *snow and strawberries*."—(Paper above cited, April 25, 1849.)

"*Cold Weather South*.—The Annapolis (Maryland) *Republican* of Saturday last says that the peaches, apricots, cherries, figs, plums, etc., in that vicinity have all been destroyed by the frost. The Centreville (Maryland) *Sentinel* says, that the ground was frozen so hard in that neighborhood on Monday, that the farmers were unable to plow."—(Paper above cited, April 27, 1849.)

"*April Frosts*."—Under this head the Cincinnati *Gazette* of the last cited date, is advised by a correspondent, J. L., that the snow-storm of April the previous year, was not so much of one as represented: that it was rather a "*snow-squall*" from the north-west, with rain, the snow melting as it fell: that the thermometer at Cincinnati was not down to below 35 degrees.

"*Better News about Fruit*.—The Hamilton (Ohio) *Intelligencer* of the 3d inst., says, two weeks ago it was thought that every species of fruit was killed by the frost. It is now ascertained that apples are yet abundant, and that some cherries and a few peaches are yet alive."—'Cincinnati *Gazette*, May 5. 1849.'

And now, to post up the statistics of the mortality from Cholera Infantum in New York, for this fatal year, the record gives 926 deaths, to contrast with 505 of the previous year, and 713 of the following year; and Adult Cholera was strongly epidemic.

It is a matter of no ordinary interest to note the extraordinary leaps in the rate of mortality on the years of the cold winters and blights in vegetation, as above pointed out, and which may be seen at a glance by consulting the synoptic map of the mortality of New York, accompanying the semi-centennial report, before referred to, appended to the report of the Board of Health for 1853: the mortuary track runs as follows, viz:

From 1804 to 1831 inclusive, a period of 27 years, the mortality, with slight exceptions, gradually increased from

2,000 deaths per annum, to 6,000, in round numbers, nearly in the ratio of the increase of the population, which, by the accompanying census returns, it appears, increased from 75,000 to 200,000 souls, in round numbers. In 1832 it went up with a bound from 6,000 to 10,000 deaths, after the coldest winter that had occurred for nearly half a century—since 1779–80, when history says the harbor of New York was frozen over, and munitions of war were transported on the ice from the city to Staten Island. Now, this is a remarkable increase of mortality, over $33\frac{1}{3}$ per cent. in one year, and this coinciding with a most remarkable constitution of the seasons of two consecutive years; but the most remarkable feature in it is, that the increase of mortality in 1832, over that of the previous year, exceeds by 125 deaths only, the exact number of deaths in that year from Epidemic Cholera; that is, Cholera Adulorum and Cholera Infantum united!

The next year, 1833, the mortality sank to below 6,000 deaths, all told. But it convulsively rose again, obedient to the scorbutic law, after the cold winter and spring blight of 1834, to 9,000 deaths, in the summer of which year, Cholera Adulorum and Cholera Infantum were again strongly epidemic. It then oscilated between 7,000 and 11,000 deaths per annum for twelve years, till 1847, the year succeeding to several unfavorable cropping years, cold winters, and remarkably disastrous summers;—the year of the Irish famine—when the mortality suddenly rose from 11,000 to 15,000 deaths!—the census in 1845 showing over 300,000 inhabitants.

Another element presented, however, in 1847, viz: the enormous increase of immigration during that year: 129,000 emigrants arrived in the port of New York, driven by starvation from Europe, fit subjects for ship fever, which was the ruling form of disease under the peculiar constitution of those remarkable years. The mortality, it appears, held to this amount the succeeding year, emigration increasing to 189,000, and epidemic small-pox being added to the causes of death.

In 1849, after another long, cold winter, and *general blight* in vegetation in the spring, the mortality sprang up

fitfully from 15,000 to 23,000 deaths—Cholera Adultorum and Cholera Infantum again taking the field. The immigration in that year was 220,000. The increase of mortality in 1849, over that of the previous year, was 7,857, almost 33½ per cent.; and it is very remarkable, again, that this number should exceed the sum of the deaths of that year from adult cholera and Cholera Infantum only by 1,757, in a population swollen to 500,000, and an immigration of 220,000!

In 1850, the mortality sank to below 17,000, after which, to the closing of the Report, the end of the year 1853, it ranged above 20,000 annually, but did not in any year reach the excessive mortality that followed the intensely cold winter and spring blight of 1849.

These statistics of cold winters and blights in vegetation, joined with the statistics of adult Cholera and Cholera Infantum leave, it appears to me, no room to doubt the unity or identity of these hitherto supposed two diseases, or to doubt the implantation of the latent morbid diathesis in the system during the colder winters especially, and years of blight in vegetation, agreeably to the scorbutic law, to be developed in epidemic form by succeeding solstitial and dog-day influences, in the ratio of the force and continuance of the operation of the remote cause, viz: defective alimentation, and the intensity of the exciting causes, viz: summer heat, vicissitudes of temperature, foul air, errors in diet, fear, teething, weaning, and other directly debilitating, disturbing, and prostrating influences. This appears to be the law governing the choleric, *alias* the scorbutic disease; if any doubt it let them consult Lind, and others, on scurvy at large.

"The coincidence of blight and pestilence has been recorded from ancient times, and the wide-spread potato disease, which has now extended to almost every region of the globe, concurrently with the presence of influenza and cholera poisons in the atmosphere, may, possibly, be a modern instance of it. At all events, it is certain that seasons which are unusually sickly to large classes of human beings, are often alike unfavorable to the health and fruitfulness of many classes of plants." (See Report on Quarantine, London, 1849, p. 14.)

It is remarked, in speaking of the swarms of flies noticed in cholera years, and that they may have something to do with Dr. Snow's theory, that cholera is propagated by germs contained in the cholera evacuations, which germs, it is supposed, are distributed through the air and in the water used for household purposes, etc., that, "they seem at least to mark one phase of that *blight in vegetation*, and murrain among cattle, which has *preceded* the cholera scourge, and which still attends upon it." (*Ranking's Abstract*, Vol 9, No. 2, Jan. 1854, p. 219).

"London has been often laid waste by fires, and ten several times has it suffered the horrible ravages of epidemics. The latest and most terrible of these is known by the name of the great plague. It occurred in 1665, and destroyed above 68,000 persons. That of 1348 destroyed, it is said, 100,000 persons. That of 1461 was more terrible still. About the year 1487, the *sweating sickness* appeared first in London, and carried off an immense number. In 1500 the plague destroyed above 20,000 of the inhabitants. In 1518, the sweating sickness re-appeared and renewed its ravages. It returned a third time in 1528, and was so virulent that the immense number of its victims died in five or six hours after being seized. In 1603, a species of the plague destroyed more than 30,000 persons. The plague of 1625 killed more than 35,000." (*Malte Brun's Geography*, Vol. 6, p. 753.)

"M. Broussais believes that cholera has reigned in Europe at former periods (a d'ante epoques), and that it is the same epidemic which, in the fifteenth century, was called the *black plague*." (*Med. Chirurg. Review*, Vol. 17, N. S., p. 200.)

I throw in the above quotation from Malte Brun without any further comment than the quotation of the belief of M. Broussais affords, not being in possession of medical historical data, at present, sufficient to enable me to express an opinion as to the identity of cholera and the sweating sickness, or black plague of former epochs: it looks reasonable. The constitution of the seasons immediately preceding those great epidemics, and all others, may throw light on the subject, and is an interesting matter for research.

The coincidence of blight and pestilence is established by the quotations from the able London Report on Quarantine and Ranking's Abstract, but hitherto the natural law thereof has not been explained, it would seem. The blight always precedes the pestilence or the sickness results from a blight and dearth of vegetable food and fruits, and not from a poison in the air that destroys people and potatoes, as may be inferred from the quotations.

Vegetables elaborate the soluble salts of soils, which mineral substances, so elaborated to succulent vegetable food and fruits, are *absolutely necessary* in human health. Some contain iron, some soda, some potash, some lime, some phosphorous, some sulphur, and so on; and to give them a relish, a kind Providence has involved them in succulent and pulpy textures, of such attractive forms as oranges, lemons, peaches, potatoes, turnips, etc., and flavored them with acids most grateful and inspiring to the gustatory sense. Now, if by a late spring frost all the fruits are cut off, and by a summer drought all the vegetable crops fail and a cold winter follows, during which there is a great demand for the best quality of blood, in order to maintain animal heat and healthful nutrition, where is a nation, and more especially the confined population of cities, to get the requisite iron for the blood, phosphorus for the brain, lime for the bones, potash for the muscles, soda for the chylopoietic viscera, sulphur for the skin, hair, and nails, and the whole inventory of the chemico-vital laboratory's necessary supplies? Pork and beans and bread and coffee do not afford them fully, by any means. They contain the nitrogenous elements largely, as well as the food of respiration, and are good as far as they go; but without a daily supply of the acids and soluble salts, containing oxygen and the necessary mineral bases in large proportions, they soon obstruct and oppress the healthful processes of the animal machine. The mucous membranes of the primæ viæ give way first, and to repair these the blood is sent thither, (*ubi irritatio ibi fluxus*) hyperæmia, congestion, disintegration follow: the more tender, feeble, and wretched in community begin to drop of winter and spring diseases, while the stronger and better protected drag

through the spring with a lethargic dullness and inertia; and when the summer heat strikes the community an epidemic collapse ensues, conformably to the scorbutic law. The white-wash brush is then plied; the streets, alleys, gutters, sewers and cess-pools cleansed; the air accused; Deity invoked; commerce quarantined; a day of fasting and prayer celebrated; Physic strikes in the dark; but all in vain—the natural law is not discerned. On the coming in of plentiful crops of vegetables and fruits, which occurs in autumn, the public health is again restored. And generally after cold winters, abundant crops are produced the following seasons, because the hard frosts more effectually disintegrate the rocks and oxides, to be dissolved by the spring rains, and imbibed by vegetation and elaborated in delicious fruits and vegetables.

“As soon as a generous public diffused the comforts of life among the seventy thousand destitute emigrant population of New Orleans, last summer, the pestilence, [yellow fever epidemic of 1853,] which was sweeping into eternity three hundred a day, immediately began to disappear, before frost or any change in the weather.” (Cartwright—see Report on Sickness and Mortality in Emigrant Ships, Washington, 1854, p. 134.)

There may be found cavillers who will object that this theory is all false, because, they may urge, it is not capable of a world-wide application, since cold winters and hard frosts never occur in intra-tropical regions, and Cholera is a native disease of a very hot climate, viz., India. I meet this objection by observing that the argument I have advanced is irrefutable in its application to extra-tropical regions; and that in earlier days, and not an hundred years ago, it was contended by Lind,* Trotter, and other distinguished writers, that scurvy could not be a disease of tropical countries; could never find subjects there, on account of the perpetual warmth and verdure, and the almost spontaneous production of a never-ending abundance of anti-scorbutic fruits and vegetables. But later observations have settled the matter that

* Lind on Scurvy, p. 242.

they were mistaken; that blights from drought, rains, and floods, occur as well there; and that scurvy does often rage fiercely as an epidemic in tropical countries, as well as Cholera. Indeed, the most powerful of all the exciting causes of scurvy, is heat; and, as I shall presently show by a quotation from the paper of an English surgeon of the army; *in India the scurvy and cholera raged simultaneously among the troops in the hottest of summer weather*: and to illustrate the fact that there is an annual variation in the meteoric influences within the tropics, arising from the swing of the seasons, capable of producing these two forms of *one and the same disease*, or rather waking it into activity from its *latent* condition in the system, as well as other forms of disease, precisely according to my views, I quote as follows:

“Nearly two hundred years ago, a Portuguese named Mandelo, in describing the diseases at Goa, makes the following statement: ‘The change of the seasons from one extremity to another, is the cause of many diseases among the Portuguese, but the most common are those which they call *mordexin*, or *mordechin*, the Hindoo name for cholera, which kills immediately,’” etc. (Macintosh’s Practice, p. 284.) Goa is in latitude about 15° N., on the west coast of Hindostan.

“In the year 1817, (the date of the great out-break of the disease in India,) cholera was epidemic in England, and was described in 1818 by Dr. Ayre.” (Medico-Chirurgical Review, Oct. 1833, N. S., 19, p. 457.)

It is said of the great out-break of cholera in India: “Of the origin of the epidemic we know no more than this: that previous to its appearance the seasons were extremely irregular and unnatural, the people sickly to a great degree, and the country inundated.” (Bengal Report on Cholera of 1817. Med. Chirurg. Rev. vol. 17, p. 94.)

It is shown in the Bengal Report, that the most remarkable constitution of seasons prevailed in India in 1816 and 1817: that the summer of 1816 was one of intense and unusual heat, and the winter of 1816–17 one of extraordinary cold and humidity: that the whole country was inundated with the greatest floods ever known, and sickly beyond all previous ex-

perience. It is also stated that the rice crop of 1817 failed from this inundated condition, and that the breaking out of cholera was ascribed to the general blight of vegetation, and damaged quality of the rice crop; but it is objected to this that the cholera appeared in the early part of the season, in certain places, before the crop was matured or even planted; but this does not prove but that a succession of blighting influences prevailed that abridged production *generally* during several previous years, and rendered the whole country sickly; this is stated to be the fact. The climax came in 1817, after an unusually cold, wet winter, during which the general sickness that had everywhere prevailed, abated; but it was a delusive calm.—When the heat of the following spring and summer struck the inhabitants, the poor in the cities died by thousands of cholera.

What a similitude! Who would have believed that the constitution of the seasons of 1816 and 1817 in India, and of 1831 and 1832 in the United States, could have been so similar? And what constitution of seasons marked the advent of cholera in France?

“The year 1832 was particularly remarkable for the sharp and smart cold winter, and the dryness of the summer. The year 1831 had been more damp than dry, more warm than cold.”—Report on the Cholera of 1832 in Paris, translated and published in New York, 1849, p. 90–93.) How exactly like the same years in the United States!

The same general law, then, always governed cholera in India, in England, France, the United States, and every where else, that governs it now—“the change of the seasons from one extremity to another:” and yet without a predisposition, or the remote cause being inlaid by abridgement of food—*defective alimentation*—“the change of seasons from one extremity to another,” is inadequate to produce it, or everybody would have it annually. The predisposition is easiest laid in the tender and fragile; hence delicate infants and broken down adults are its readiest victims. It is all called Cholera in Europe and Asia, whether occurring in infants or adults.

The statistics of the mortality from cholera in Paris in

1832, show that the deaths in subjects under five years of age were 24 in 1,000; in subjects from five to fifteen years of age, 5 in 1,000; in subjects from fifteen to thirty years of age, 10 in 1,000; in subjects from thirty to sixty years of age, 27 in 1,000; in subjects from sixty to one hundred years of age, 63 in 1,000.

Of men the mortality was 21 in 1,000; and of women 22 in 1,000. In the suburbs of Paris, the mortality of women was *one-fifth* greater than of men. Senility, then, mature age, infancy, and the female sex, are the most liable. This illustrates the mortality from Cholera Infantum in the United States: all dying of Cholera under five years of age are reported *Cholera Infantum*.

I will remark here, that the laws governing the inlaying of the scorbutic diathesis, may not be fully explained by these views—the subject is but obscurely understood in the present state of medical science. That extreme meteoric impressions, as cold and moisture, or heat and moisture, powerfully co-operate with defective alimentation to weaken and congest the internal capillary system, there can be no doubt: thus digestion and assimilation will be obstructed by outer agencies acting in the same direction with a daily improper or defective dietary. Under these circumstances, the blood will be more rapidly starved of its proper elements, and thoroughly impoverished; and thus the scorbutic diathesis may be inlaid and fully developed, no doubt, in summer or winter, under intra-tropical or extra-tropical influences. In illustration, I will quote from a very able paper on Cholera by Mr. Thom, surgeon to Her Majesty's 86th regiment, at Kurrachee, India.

After stating it as his opinion that the existence of a *ho atmosphere* loaded with moisture, and at the same time in a stagnant state, is a cause of cholera, independent of any chemical change in it, he discusses the morbid agencies which he thinks induce the *changes in the blood*, viz., a loss of the solid constituents—as in scurvy—that must exist to constitute what he calls the latent condition of Cholera. The improper quality of the soldiers' rations he places first among the morbid agencies. He says they are the same in

kind and quality in India as in Canada—as much meat through an Indian summer as a Canadian winter—which tends powerfully to congest the system in that hot climate where there is a great deficiency of oxygen in the air. He dwells also on cutaneous exhalation as a morbid agent, which, he says, is wonderfully super-abundant, calling for some ten or twelve pints of drink per day for each soldier, never omitting the *ardent*; which inordinate action of the cutaneous capillaries, he thinks, tends further to internal congestions; and I will add to wash away the soluble salts of the blood—the hydraulic cement of the whole fabric. Quere, would the soldiers have sickened on ten pints each per day, of lemonade, or effervescing soda powders, and a dietary of vegetables and fruits, chiefly? but to the quotation.

“LATENT CONDITION OF CHOLERA.—The state of the system referred to as resultant on chemical change of the constituents of the air, in which carbon is accumulated in the blood, and fibrin and albumen diminished, will vary in degree according to idiosyncrasies, habits, and constitution, so that certain numbers of a community will be affected to an extent bordering on, or breaking out into open disease. Noxious agencies whether of atmospheric origin acting on the skin and lungs, or as poison introduced through the assimilating functions, when applied in a minute degree, but steadily, kept up for a length of time, have a tendency to produce effects that are called accumulative. Their action is latent, but not the less certain, till all of a sudden it is developed as if the whole had been suddenly concentrated into one overwhelming dose.

“CONNECTION WITH SCURVY.—The scorbutic diathesis furnishes a forcible example of this; and sudden death is not only induced by slight causes of excitement, in men laboring under it, but even those who have exhibited no alarming signs have been equally affected. This is exceedingly applicable to cholera, between which and scurvy there is a great analogy in the state of the blood; and on cholera subsiding the scurvy appeared in our regiment, and also in other corps.

“SUDDEN CLIMAX OF ACCUMULATIVE MORBID CHANGES.—If

then, by a sudden climax of all the causes of this latent diathesis, a state of weather inducing universal congestion, almost approaching to obstruction of the vascular system, occurs, can we be astonished that life will, in many, be abruptly cut short, as if some lethiferous draught had been swallowed? Such, I am firmly persuaded, is the only rational way of accounting for those numerous cases of cholera which terminated fatally in a few hours, without those symptoms which nature usually exhibits in a salutary effort to remove local or general congestion."—(*Medical Times*, March 11, 1848, p. 388.)

Thus it is proved past all doubt, that the causes which produce scurvy exist as well in tropical countries as in the higher latitudes; that changes of the seasons, floods, inundations, blights in vegetation, or the abridgment of the productions of the soil causing deficient or defective alimentation, are the causes of it, the same as in colder countries; proving conclusively that the theory of the scorbutic nature of cholera is susceptible of world-wide application.

I cannot but marvel that the identity of cholera and scurvy should have escaped Mr. Thom's powers of observation, when he saw them so nearly and closely associated. Still the same observations occurred to me years before the truth was clearly established in my mind. I not only saw the scurvy left in patients who recovered from cholera, but I saw it in many before the attack came on; and as I shall illustrate by cases before I close this essay, successfully treated *Cholera Infantum* as *scurvy in infants*, whose mothers labored under that form of it called *Nursing Sore Mouth* or *Puerperal Anæmia*, twenty years ago, by the administration of anti-scorbutic remedies.

Since the year 1832, when Cholera Adultorum first became epidemic in the United States, the records of mortality for the city of New York, show that down to the close of the year 1853, 12,044 adults have perished of it in that city, and 10,044 infants of Cholera Infantum. From 1804 to 1831 inclusive, 3,308 infants died of Cholera Infantum in New York, which swells the mortality from *Cholera Infantum* in that

city, during the last half century, to 13,352; and from *Infant and Adult Cholera united* to 25,396 souls!

I will now endeavor to illustrate the unity of these hitherto supposed two diseases, and the essentially scorbutic nature of the *choleric disease*, by the statistics of emigration: this constitutes an important chapter in its history.

The blight in vegetation and dearth of provisions in Great Britain and Ireland, as well as on the continent, in 1847, caused thousands upon thousands of foreigners to emigrate to the United States. Over 100,000 emigrants left the British Isles for this country during the first half of that year.—The *scurvy* prevailed in England, Ireland and Scotland to an awful extent, imputed to the blight of the potato, as may be seen by reference to the British medical journals of that year; and typhus fever and cholera were associated with it. An hundred thousand persons and more died that year in Ireland alone; and nearly every Irish emigrant who came to this country had the inlaid and accumulated scorbutic depravity lying latent in his system. "There is nothing unnatural in the desire of the unfortunate Irish to abandon their cheerless and damp cottages, and to crawl, inch by inch, while they have yet a little strength, from the graves which apparently yawn for their bodies. What will not poor humanity do to avert the blow which death seems to aim?

Inlaid or latent scorbutus in embarking emigrants, modified by the constitution of the seasons, and by the exciting causes, as sea-sickness, inaction or sloth, poor diet and foul air on ship-board, and, *may be*, by a *specific typhus infection*, was mostly developed in the form of ship fever, as it reached our shores, till the next year, 1848, when the choleric form predominated; and after the intensely cold winter of 1848-49, and succeeding spring blight, enough subjects were prepared, or charged with scorbutus in the latent manner, for an epidemic out-break of it in the choleric or hemorrhagic form in this country, under the powerfully exciting causes of summer heat and vicissitudes of the weather.

Of the causes of sickness in emigrant ships, Dr. Cartwright, of New Orleans, speaks as follows: "Provisions are not only soon deteriorated in quality by heat and mois-

ture, but also if exposed to human emanations in a concentrated form, as they always are when deposited in the steerage of a crowded emigrant ship. The food partaken of in such places is so deteriorated in quality that it is digested with great difficulty, and it is apt to cause vomiting and diarrhœa. That scurvy, cholera, dysentery, ship fever, and other pestilences are mostly caused by eating food deteriorated in quality, drinking bad water, and breathing an atmosphere loaded with the moisture of human exhalations, there can be no doubt." (Hon. Hamilton Fish's Report to the Senate of the United States, on the Sickness and Mortality in Emigrant Ships, before quoted, p. 126.)

Now infants of this class of progenitors—scorbutic, sickly emigrants—if not still-born, die of *Cholera Infantum*, in great numbers, in all the entreports of the United States, every summer; and many mothers, also, die of—a sudden, soon after delivery; only explained by the scorbutic law.

Dr. Isaac Wood says, (Report above cited, 105.) "About twenty-seven years ago, typhus, ship or prison fever, for they are the same, prevailed to an awful degree in our largest prison and pauper establishments. The disease got into the lying-in department and committed dreadful ravages. Women would be confined, have easy and natural labors, be comfortable twenty-four or forty-eight hours, and the next twenty-four or forty-eight hours be corpses."

The average number per annum of *still-born infants* in New York, for the seven years immediately preceding the year 1847, was 790; and the average number per annum for seven years thenceforward, including the year 1847, that is, from 1847 to 1853 inclusive, was 1,377: a disproportionate excess of 281 per annum over the average number called for from the increase of the population—an over proportion of 20.4 per cent. per annum.

The average number per annum of *infants dying of Cholera Infantum* in New York, for the seven years immediately preceding 1847, was 453; and the average number from 1847 to 1853 inclusive, was 770: a disproportionate excess of 142 deaths per annum, over the average number called for by the increase of the population—an over proportion of

twenty per cent. per annum, exactly. What striking facts and coincidences!

The census returns of 1845 and 1850 are taken as the two means of the above septennial periods, or averages of the population. That of 1850 is the true mean period of time for the last seven years, and that of 1845 one year too late for the first seven years, which throws the results of the above calculations, it is true, a little over the excessive or disproportionate mortality called for, both still-born and from Cholera Infantum, but without affecting the relation to be seen between these two causes of death in the agreement of per centage.

These statistics show that some element, causing death in infants, exists in New York, associated with immigrants, and that it is operative before birth. That this element or cause of death is scorbutus, is to be inferred from sundry reasons. The foetus is not obnoxious to meteoric influences, nor to other causes of disease and death external to the mother. Emotional causes, it will not be contended exist in the unborn infant; and it is, at least, questionable if they can reach it in utero through the mother. Constitutional disorders and diatheses do, some of them, pass from mothers to infants in utero, and scorbutus is in this category.* The nutritive function appears to be the only channel through which contamination can pass, and defective nutrition is the foundation of scurvy. Sudden death from shock is a scorbutic law, and most of the still-born infants die from the shock occasioned by the uterine efforts upon them. Where mothers labor under scorbutus, it has been found that a large proportion of their infants at birth or a few weeks old do also. The scorbutic diathesis is a prolific cause of abortion and premature birth. These reasons leave no room in my mind to doubt the hidden element of death in question being scorbutus, This conceded, the affirmative of my proposi-

* Bruceus, who wrote in 1589, says: "The scurvy is endemic in particular countries from their situation, air, water and food. In these countries, scorbutic mothers bear scorbutic children, often miscarry, at other times bring forth dead fetuses." (Lind on Scurvy, p. 315.)

tion that Cholera Infantum is a scorbutic affection is equally sustained by the argument, for the statistics show that infant mortality from it is associated with emigrants in the same ratio.

Not to make use of some of the abundance of materials that offer in proof of the scorbutic condition of immigrants, and introduce it in this connection, would be doing injustice to the paramount importance of the great question, the true cause and essential nature of Cholera Infantum. I shall therefore draw a few extracts from the Senatorial Report before quoted on the Sickness and Mortality in Emigrant Ships, begging the reader to bear in mind what I have incidentally let fall as to the nature and pathology of scurvy, viz: that it is a slow poisoning from the want of proper nutrition, rather than from the introduction of anything deleterious—a negative poisoning that infallibly ensues when the natural laws in regard to diet are daily infringed by the absence of succulent vegetable food and fruits, it being nature's law that omniverous man should have a variety of animal and vegetable food, but more especially the latter.

At page 79, in Mr. Bierwirth's reply to the circular of the Senatorial Committee, occurs the following paragraph, written in January, 1854:

"The present state of things is, in a modified form, a repetition of what was witnessed in 1847-48, when, (as mentioned in a Report of the Commissioners of Emigration of the State of New York) the number of persons who perished by ship fever at sea, and in the various emigrant hospitals in American ports, was estimated to exceed 20,000. There is also a remarkable analogy between that period and the present [1854] in the high price of bread-stuffs and all other articles of human food; and this confirms me in the opinion expressed years ago, and adhered to ever since, that the mortality at sea is mainly, if not entirely, owing to the want or insufficiency of wholesome nourishment during the passage. The subject at that time attracted the attention of the New York Chamber of Commerce, and a committee of that body to whom the matter was referred, arrived at the conclusion that the main causes of the many deaths at

sea, were, ' want of food and want of pure air in the between decks.

At page 80, in the Report to the New York Chamber of Commerce, accompanying Mr. Bierwirth's communication, occurs the following: "Next to the miserable state of health in which so many emigrants embark, the great causes of the deplorable condition in which they arrive in our ports are—

"Want of sufficient and wholesome nourishment during the passage, and want of pure air in the between decks or steerage, where emigrant passengers are generally located.

"The Chamber of Commerce is doubtless aware that emigrants from Great Britain and Ireland can claim from the ship that carries them nothing in the shape of food, except one pound of bread and three quarts of water each per day; and it is a well known fact that even this they cannot always obtain—that the law is shamefully violated—that vessels leave Liverpool without providing the required quantity of bread. But all nourishment beyond bread and water, must be furnished by the emigrants themselves, and it is their business to get it cooked as best they may. The consequences of this arrangement to the poor, careless, improvident people are self-evident; many of them embark without any provisions of their own, and very few, if any, with a sufficient supply; many have not the means to buy food, and those who have deceived themselves as to the duration of the voyage; and hence it is doubtless true that not one of all the emigrant ships from British and Irish ports has a sufficient supply of proper food for all on board."

Surely no medical mind can contemplate the above facts and deny that scurvy is inlaid in every emigrant: it were just as safe to deny that two and two make four. But thousands—the majority—are saturated with it, "died in the wool" before embarkation, it appears, for the want of food aboard, is placed as second, "to the miserable state of health in which so many emigrants embark," and we have seen that, that miserable state of health was *scurvy*, so plainly unmasked in 1847 that no medical tyro could mistake it; and

the communication of Messrs. Oelrichs & Co., p. 88, confirms the fact of the wretched state of health in which emigrants embark, viz :

"The recent mortality on board of emigrant vessels was, we believe, mainly the natural development of disease contracted before embarkation, and not owing to want of attention on the part of the master or his subordinates."

At page 89 occurs the following paragraph in Mr. Rucker's communication, written in 1854 :

"The recent alarming mortality on board emigrant vessels from Europe calls for the attention of the legislature. It has been stated that during the month of November last, 28 of the whole number of emigrant ships which arrived at New York had cholera on board, and that of 13,762 passengers no less than 1,141 died by this disease, and between four and five thousand were afflicted with it during the passage."

It appears by this, that fully one-third of all—"between four and five thousand of 13,762," were so imbued with scorbutus, according to my view and explanation, that they fell under its law of collapse during the voyage. Woe to such as were with child and that gave suck in those days; and worse woe to the sucklings who drew their nutriment from such polluted fountains. Cholera Infantum is ever the sure inheritance of infants so bred and born, and if they survive *it*, their whole lives are embittered by constitutional feebleness.

Again, same page and communication :

"Passengers providing themselves get cheated in every way—quantity, quality and price. The consequence is, that the poorer lay in not only an extremely small stock, but also a defective stock, and trust to the good nature of those better off, or to chances to appropriate to themselves what does not belong to them, and lastly, rely on the master of the vessel to save them from starvation, but after all, suffering from want of proper nourishment."

Again, same communication, page 96 :

"In stormy weather owing to an arrangement of the cook's galley, passengers may, for days together, be unable to cook at all. Sea-sickness weakens, makes lazy and indifferent, so

that even the most energetic captains complain that they are unable to enforce cleanliness unless aided by law; and threats to treat as mutineers such as will not obey, are often necessary. Many passengers have to be brought on deck by main force."

Now here are described as being present in these emigrant ships, all the causes of disease that in earlier days developed sea-scurvy, but that now-a-days develop either cholera or ship-fever; and the only reason that can be assigned for the change in the mode of manifestation, if indeed there be any, is an improvement in the human constitution, brought about by an improved agriculture, horticulture and fruit-culture, giving it greater powers of resistance, or greater protection against scurvy. That human life is lengthened by the multiplied comforts of modern civilization, commerce and the arts of peace and rural industry, is proved by the vital statistics of the Life Insurance Offices. What then were the collapsing symptoms of scurvy in the early sea-voyages? What was the mode of death, when "deaths occurred from scurvy to the amount of eight or ten a day in a moderate ship's company; bodies sewn up in hammocks and washing about the decks, for want of strength and spirit on the part of the miserable survivors to cast them overboard," as in Lord Anson's voyage? Why, according to the best accounts, it took on the form of "*putrid fevers*, pleurisies, jaundice, and violent rheumatic pains," so says Lord Anson; and Ellis, the explorer of a "north-west passage" in 1746, says of his scurried crew, that, death carried them off, either by a *flux* or a dropsy." It appears also by Lord Anson's account that the epidemic increased with hot weather, and that the mortality in one of his ships was forty-three in April, twice that number in May, and as many more by the middle of June, when the squadron arrived at the island of Juan Fernandez, and the sick were put ashore, numbers dying in the boats in being got ashore, and the epidemic still continuing very fatal for twenty days after landing. "The Centurion, from her leaving England, when at this island, had buried 292 men, and had but 214 remaining of her complement. The Gloucester, out of a smaller complement, buried the same

number, and had only 82 alive!" It would seem then, that the causes of disease were the same in the earlier voyages as in emigrant ships in these days, viz: want of proper and sufficient food; want of ventilation; and want of exercise. And it further appears that the *putrid fevers, watery fluxes*, etc., that carried off three-fourths of a ship's crew in former days were considered forms of scurvy. These are instructive reminiscences. Like causes produce like effects through all time.

I will introduce but one other quotation on this subject, which, coming from the source it does, is entitled to much weight, and should not be omitted. It is taken from the Report on Quarantine of the General Board of Health, London, 1849, before quoted, and is the experience of a gentleman who took passage in the steerage of a vessel to prove the comfortableness or otherwise of the emigrants' voyage to America.—See said Report, page 101.

"Before the emigrant has been a week at sea," says Mr. Stephen De Vere, "he is an altered man. How can he be otherwise? hundreds of poor people, men, women, and children, of all ages, from the drivelling idiot of ninety to the babe just born, huddled together without light, without air, wallowing in filth, and breathing a foetid atmosphere, sick in body, dispirited in heart, the fevered patients lying between the sound in sleeping places so narrow as almost to deny them the power of indulging, by a change of position, the natural restlessness of the disease; by their agonized ravings disturbing those around, and predisposing them, through the effects of the imagination, to imbibe the contagion; living without food or medicine, except as administered by the hand of casual charity, dying without the voice of spiritual consolation, and buried in the deep without the rites of the church. The food is generally ill selected, and seldom sufficiently cooked, in consequence of the insufficiency and bad construction of the cooking places. The supply of water, hardly enough for cooking and drinking, does not allow washing. In many ships the filthy beds, teeming with all abominations, are never required to be brought on deck and aired; the narrow space between the sleeping-berths and the

piles of boxes is never washed or scraped, but breathes up a damp and fœtid stench, until the day before arrival at quarantine, when all hands are required to 'scrub up,' and put on a fair face for the doctor and government inspector.

"No moral restraint is attempted; the voice of prayer is never heard. Drunkenness, with its consequent train of ruffianly debasement, is not discouraged, because it is profitable to the captain, who traffics in the grog.

"In the ship which brought me out from London last April, the passengers were found in provisions by the owners, according to a contract and a furnished scale of dietary.

"The meat was of the worst quality. The supply of water shipped on board was abundant, but the quantity served out to the passengers was so scanty, that they were frequently obliged to throw overboard their salt provisions and rice (a most important article of their food) because they had not water enough both for the necessary cooking and the satisfying of their raging thirst afterwards.

"They could only afford water for washing by withdrawing it from the cooking of their food. I have known persons to remain for days together in their, close berths, because they thus suffered less from hunger, though compelled at the same time, by want of water, to heave overboard their salt provisions and rice. No cleanliness was enforced; the beds never aired; the master, during the whole voyage, never entered the steerage, and would listen to no complaints; the dietary contracted for was, with some exceptions, nominally supplied, though at irregular periods; but false measures were used (in which the water and several articles of dry food were served,) the gallon measure containing but three quarts, which fact I proved in Quebec and had the captain fined for. Once or twice a week ardent spirits were sold indiscriminately to the passengers, producing scenes of unchecked blackguardism beyond description: and lights were prohibited, because the ship—with her open fire-grates upon deck—with lucifer matches and lighted pipes used secretly in the sleeping-berths—was freighted with government powder for the garrison at Quebec.

"The case of this ship was not one of peculiar misconduct:

on the contrary, I have the strongest reason to know from information which I have received from very many emigrants well known to me, who came over this year in different vessels that this ship was better regulated, and more comfortable than many that reached Canada."

At page 118 of said Report, this subject is alluded to as follows, viz. "The late Chairman of the Emigration Commission, T. F. Elliott, Esq., in his examination by a committee of the House of Lords, says:—'One of the most important pieces of evidences upon emigration which I have ever seen in my life was contained in a letter which I received from Mr. Stephen De Vere. He is a private gentleman who has gone from Ireland to Canada, wishing to judge for himself whether it was a good place to which to encourage his poorer neighbors to proceed. He voluntarily exposed himself to the inconvenience and hazard of taking his own passage in the steerage, and after his arrival he wrote to me, at my request, a very full letter, giving an account of all that he observed. This letter has, I think, weighed much with the Government in forming the conclusion that it was desirable to endeavor to amend the law in the course of the present session.'"

So much for the evidences drawn from emigration; and if this mass of statistics and reliable testimony does not fully sustain the conclusions to which I have come, that emigrants are scorbutic, and that cholera in them and Cholera Infantum in their offspring are but modes of manifestation or modified forms of the same old disease, scorbutus, I ask, whither shall the researching medical mind turn for evidences in support of a rational view or theory of cholera and Cholera Infantum? Where but in the scorbutic theory is there any light? It is hardly necessary to sum up the testimony which this branch of this subject offers in support of the affirmative of my propositions, so strikingly do the facts and statistics sustain them. Can any medical mind revert to an hypothesis again, go back and grope in the dark, after a rational philosophy of noon-day truth has thus unfolded the unquestionable nature of Cholera Infantum, and illustrated by statistics (not gotten up for the purpose) the laws of its

development? I think not. Can any one doubt as to the cause and essential nature of the choleric disease after considering its connection with emigrants; their contamination with scurvy; the collapsing law of *its* manifestation; and the parallelism between the over-percentage of mortality reported still-born, and the deaths from Cholera Infantum in New York since 1847, when the enormous increase of emigration to this country set in? I think not: the matter must be as good as settled in the mind of every candid reader, it appears to me.

There is another particular in the history of Cholera Infantum that must not be passed unnoticed; it is this, that while it is generally confined to infants of the poor, wretched, and ill-fed classes described, it occasionally manifests itself in infants of the better classes, families supposed to be sumptuously fed; apparently belying the theory of its scorbutic character. Those practitioners who attend the higher classes in cities, even when the disease is raging among infants in the lowest walks of life, see but little of it. But this exception only proves the rule—luxury and effeminacy are closely associated. Many a mother in high life becomes dyspeptic, scorbutic, and hopelessly dilapidated by luxury, inaction, and rapid breeding, and entails the most faulty stamina upon her offspring, and affords from the breast the most unhealthy nutrition. Neither mother nor infant under such circumstances can appropriate the materials of a healthy nutrition, for the want of organic vigor; and besides, the most mistaken prohibitions are often enjoined by medical direction—the acids, fruits and vegetables being interdicted, (of all articles of diet, with good beef and porter or wine bitters added, the most needed) while crackers and tea, toast, soda biscuits, and cocoa are daily inflicted, to the perpetuation of the constitutional difficulty in both mother and child. It thus becomes an heir-loom in families, or an hereditary taint. Dr. J. Forsyth Meigs, (*Diseases of Children*, page 202) says: “My own observation leads me to believe that the disease is apt to occur in certain families. I am acquainted with one family in this city [Philadelphia] in which eight out of ten children suffered from the disease.

Of these children, four have grown up, married, and have children. Two of these families have each lost a child by the disease; in a third, the two children of the family have been exceedingly ill with it; while in the fourth, some of the children have been sick, though not to the same degree. Again, I have attended this summer, (1847), two children in a family, one not quite two years, and the other three months and a half old, who have both been very sick with the disease. The elder child was ill the summer before in the same way. The mother of these children was herself very ill with the disease on several occasions during her infancy, as was also her brother."

This sustains my views of the ante-natal history and scorbutic character of Cholera Infantum, and accords so harmoniously with the physiological dogma that parental organization and physical stamina are transmissible to offspring, and with them liability and aptitude to the same forms of disease their progenitors manifested, that in this sense it must be conceded Cholera Infantum is hereditary, as Dr. Meigs inculcates, but without explaining why and wherefore. Nor is the dilapidated mother always chargeable, or chargeable alone, with the offence of entail: the sin often lies as well at the door of a besotted father. Where the fathers have eaten sour grapes, after this fashion, the children's teeth are wont to be set on edge. Repeated, daily intoxication for weeks and months together, necessarily lays the scorbutic diathesis in the system, from defective alimentation and abridged nutrition, as I have sufficiently satisfied myself by the physical signs in mania a potu, and abundantly verified by the success of anti-scorbutic treatment: and this view also explains why so many drunkards die of Epidemic Cholera. I have also further observed many cases of mild insanity to occur during scorbutic seasons, in both sexes, marked by the physical or objective signs of incipient or latent scurvy, and have found them medicable by anti-scorbutic treatment; which facts are, by no means, irrelevant in tracing the history of Cholera Infantum, for I have repeatedly treated infants and the older children for it of parents so affected; showing that the whole family were suffering from defective

alimentation, and that scorbutus affects the brains as well as the bowels; throwing much light on the nature and character of the head symptoms in Cholera Infantum.

The inordinate use of tobacco,* also, I have observed, enfeebles many a father, interfering so much with the digestion and assimilation of food, from the constant ejection of the saliva, that the physical signs of latent scurvy appear in the mouth, and a scorbutic feebleness is visited upon the offspring, evidenced by a proclivity to Cholera Infantum. But, probably, the greatest source or cause of scorbutus in the cities of the United States is the everlasting round of a mono-dietary of pork, bread and coffee—pork three times a day! and but a stinted allowance of stale, city milk from slop-fed cows, not unaptly derided “chalk and water,” for the most infantile members of the family. Contrast such a dietary with the abundance of nutritious, fresh cows’ milk from clover-pastured animals, fresh vegetables and fruits, eggs and poultry to be found at the country farm-houses in the old settled region of Lancaster county, Pa., and no one need seek further for the reason why Dr. Eberle, “during a practice of twelve years in the country, met with but two or three cases of this disease in infants:” that county being the field of his observations in country practice.

EVIDENCES DERIVED FROM THE PHENOMENA.

No method I can pursue under this head, so far at least as the symptoms and anatomical characters are concerned, can be fairer or less exceptionable than to collate the descriptions given by writers of the supposed several diseases, which I hold to be one, or but modified manifestations of the same diathesis, viz: Cholera, Cholera Infantum and Scurvy, and allow the reader to judge whether or not my views are correct. The real philosophy of medicine, in investigating the phenomena of disease, seems to consist in ascertaining the actual state of the system, of which symptoms and signs are the exponents, and anatomical characters the post-mortem evidences.

*Harvey, who wrote on scurvy in 1673, attributes its occasional cause to the use of distilled spirits, and tobacco.—(*Lind on Scurvy*, p. 372.)

Bearing in mind, then, the views I hold of the scorbutic unity of Cholera and Cholera Infantum; the different degrees and shades in which the scorbutic depravity may be unconsciously and unsuspectedly inlaid in the systems of thousands, young and old; the disparity in the age of the subjects, by which symptoms are always modified; the Protean character scurvy has always borne, and its collapsing tendency from extreme thermometric impressions, sudden vicissitudes of weather, fright, or other exciting causes; if I shall be able to show a general likeness in the supposed three forms of disease—a *oneness* of pathological condition in the system—no matter though some particular features may differ, as unwittingly drawn and misunderstood by artists, still the family likeness will pronounce the group a *triune malady*: but especially if added to this, I shall unfold in therapeutics that, the supposed differing forms of disease yield alike to the same treatment—the administration of anti-scorbutic remedies—what then will be the inference? plainly that the supposed three maladies are one and the same: no common sense view or conclusion other than this can possibly be maintained. It will never answer to say that these results arise from, or are owing to, a complication of scurvy with Cholera or Cholera Infantum, as in scarlatina, measles, small-pox, etc., where inoculation pronounces that there is *specific* cause for the distemper independent of scurvy: but the idea of a specific infection, or contagion being the cause of Cholera Infantum has never been mooted, and is fast fleeing the minds of those who entertain such a notion with regard to Cholera Adultorum.

When, therefore, a condition of the system is met with betokening low and ebbing vitality; when we see the whole fabric as it were dissolving, disintegrating, bleeding, either red, white, or mixed blood: the most delicate structures softening, congesting, infiltrating; petechiæ appearing; and somnolency indicating that the same mischief is going on in the brain as in the bowels and in the skin; away with nosology—fall back on general principles—prescribe not for a symptom, but for *the condition*. It matters not what name an epidemic manifestation of this condition in adults bears,

or in infants, or in sheep dying in the spring of the "rot" for want of turnips, or cattle of bloody murrain. It matters not though one set bleed from the nose; another from the stomach, and vomit it out; another from the intestines, and purge it off: or whether the blood or infiltration be sanguineous, fibrinous, sero-sanguineous, or only serous: the state, or pathological condition is one and the same, and it appears to me the only rational, philosophic, and truthful view to be taken of it is to consider it a scorbutic condition, and treat it accordingly. This will be rendered more plain by comparing the phenomena.

PHENOMENA COLLATED—NATURE AND SEAT OF THE DISEASE.

CHOLERA.

"Were we to attempt to illustrate in a few words the nature of cholera by examples drawn from analogous diseases, we should say that its choleric stage presented in a more intense degree the initiatory collapsed symptoms of certain bad fevers, before reaction had taken place, combined with excessive gastro-intestinal irritation; whilst the febrile stage bore a very close resemblance to such fevers after the establishment of reaction.

"The affection of the alimentary canal is essential and primary if any part of the disease is so; and it were vain to attempt to trace it to a morbid condition of any other organ or system of organs."—(*Dr. Brown—Cy. of Prac. Med.*—Vol. I., p. 412.)

"The probability is, that a poison is taken into the system, capable of making a profound impression on all its parts; and that among its effects, is either such a relaxation of the exhaling orifices as to admit the ready passage of the more fluid parts of the blood, and sometimes of the red corpuscles themselves, or such a modification of the circulating fluid, as to cause it to pass through structures which ordinarily retain it, or else a combination of these two conditions."—(*Dr. Wood—Practice of Med.* Vol. I., p. 691.)

CHOLERA INFANTUM.

"For my part, I am disposed to believe that cholera infantum is a disease of the mucous membrane of the alimentary canal, which, beginning with morbid development of the mucous follicles, independent of evident inflammation, occasions first secretions from those organs, and after a time runs into inflammation and its results, ulceration, softening and thickening.

"That it is not an inflammation in the beginning, is, it seems to me, clear, from the nature of the anatomical lesions, and from the facts that the early stage is often unaccompanied by any febrile movement whatever, and is not unfrequently attended with disposition to collapse, like that which occurs in the cholera of adults; but that it becomes an inflammation after the development of the follicular apparatus has lasted a short time, is also, I think, apparent, and from the nature of the anatomical lesions, and from the circumstance that there is always more or less violent febrile reaction after the first few days."—(*Dr. J. Forryth Meigs—Diseases of Children*, p. 297.)

SCURVY.

"Every phenomenon connected with scurvy, pronounces it to be a gastric disease. It commences in the stomach, and thence propagates its morbid action throughout the entire system of assimilating organs: to which we might add the organs of nutrition. Hence the change which ensues in the state of the fluids. The whole apparatus which prepares them being disordered in its action, it cannot be expected that they will remain sound."—(*Dr. Caldwell—Note in Caldwell's Cullen.*)

"M. Broussais contends that in scurvy, whatever may be its cause, there is first an irritation of the internal membrane of the digestive canal; secondly, an imperfect assimilation of the elements, especially of fibrin and gelatin, either in the tissues formed out of them, or in the blood which directs them to different parts of the body; thirdly, that in consequence of defect of nutrition, a diminished cohesion of fibre ensues; which accounts for the imperfect contractility and fragility of the muscles, for the rupture of vessels and escape of their fluids, and finally, for the easy disorganization of the tissues."—(*Treatise on Physic, quoted in Cyclopædia of Prac. Med.*, Vol. IV., p. 115.)

REMARKS ON THE NATURE AND SEAT OF THE DISEASES.—What a parallelism! and “the *probability* is that” the slow poison which produces this parallelism in the *nature* of these supposed three forms of disease, as above described, is just what I have pointed out, viz: *defective alimentation*. The “profound impression” it is capable of producing, is pretty well understood in *Scurvy*—the relaxed solids and the oozing fluids are familiar illustrations; sometimes red blood, at other times only serum, and again mostly fibrin escapes from the vessels. No other essential morbid condition whatever has been pointed out, in either Cholera or Cholera Infantum. “The affection of the alimentary canal is essential and primary” in all, but it is not exactly inflammation: it is rather a stasis of the impoverished blood in the softened, weakened tissues at first, the evil lying latent, often without the subjects’ being conscious of it, till the change of the seasons from one extremity to another, applies the torch to this magazine of morbid derangement, when something must happen—a climax must result—the critical moment has come—bleeding of some sort ensues—collapse follows—death or feeble reaction is the result. Thus, the essential *nature* of the morbid condition of the system appears to me to be identically the same in these hitherto supposed three forms of disease, modified by age and other circumstances, of course. Outside of this view, there is no light on the etiology and nature of Cholera and Cholera Infantum, and by these views all is made plain and easy of comprehension; for, as M. Broussais contends, whatever may be the cause of Scorbutus, irritation in the digestive canal, imperfect assimilation and defective nutrition, disorganization of the tissues and an escape of fluids, characterize it—and are not these also the characteristics unfolded in the study of the nature and pathology of Cholera and Cholera Infantum? Vomiting and purging, collapse and death, or feeble reaction, are resultant phenomena.

PHENOMENA COLLATED—LATENT CONDITION AND COLLAPSING TENDENCY.

CHOLERA.

Mr. Thom, surgeon in the British army in India in 1848, observed the "latent condition of cholera," as he calls it, and described how it is inhaled little by little, by "noxious agencies," as improper alimentation and extreme meteoric impressions, "till all of a sudden it is developed as if the whole had been suddenly concentrated into one overwhelming dose."

He compares it in its latent state and collapsing tendency to scorbutus, which he noticed in the regiments after the cholera had subsided. After illustrating the latent accumulation and sudden collapse of cholera by the scorbutic law, he concludes as follows:

"Such, I am firmly persuaded, is the only rational way of accounting for those numerous cases of cholera which terminated fatally in a few hours, without those symptoms which nature usually exhibits in a salutary effort to remove local or general congestion."—(*Times*, March 11, '48.)

"Cases have been frequently observed, in which fatal collapse supervened without vomiting; and others are on record in which there was neither vomiting nor diarrhoea. In some instances considerable muscular strength remains, and the patient suddenly rises up from bed with an expiring effort, and falls lifeless."—(*Dr. Wood, op. cit.*)

CHOLERA INFANTUM.

"Let any one take a walk in a summer morning, through the thickly built lanes and alleys of Philadelphia, he will be struck with the appearance of the children, reclining their heads as if exhausted, upon the breasts of their mothers, with a pale and languid countenance, a cool and clammy skin, a shrunk neck, and other signs of debility, wholly destitute of animation, without appetites, and on the very verge of cholera."—(*Dr. Parish on Prophylactic Treatment of Cholera Infantum—Quoted by Eberle, Diseases of Children.*)

"It may be sudden or gradual. Much more frequently the invasion is gradual."—(*Meigs—op. cit.*)

"It frequently comes on in a gradual manner."

"In some instances it commences and proceeds with such violence as to exhaust the vital powers and terminate in death in a single day."

"Death sometimes takes place most unexpectedly."—(*Eberle, Diseases of Children* p. 283.)

SCURVY.

"Scurvy is generally very gradual in its approach, so that it is scarcely possible to say in any particular case what was its precise time of attack. Attention is commonly first attracted by an unhealthy paleness."

"Sometimes, after remaining latent for a considerable time in the system, it breaks out fiercely and runs a very rapid course to its termination."—(*Dr. Wood—op. cit.*)

"The scorbutic diathesis furnishes a forcible example of this [latent condition,] and sudden death is not only induced by slight causes of excitement, in men laboring under it, but even those who have exhibited no alarming signs have been equally affected. This is exceedingly applicable to cholera, between which and scurvy there is a great analogy in the state of the blood, and on cholera subsiding, scurvy appeared in our regiment and also in other corps."—(*Dr. Thom, Med. Times*, March 11, 1848.)

"We have seen several, who, without pain, dropped down dead suddenly."

"We have seen some whose breast was so oppressed, that they died all of a sudden."—(*Leid on Scurvy.*)

REMARKS ON THE LATENT AND COLLAPSING PHENOMENA.—

I have myself observed this latent condition of Cholera, Cholera Infantum and Scurvy; that is, the scorbutic diathesis to be very prevalent prior to the breaking out of epidemic Cholera and Cholera Infantum; and I have also observed that *every patient* who survived an attack, presented the objective signs of Scurvy, viz: hyperæmia of some portion of the mucous tissues of the mouth, generally of the gums, arches of the palate, etc., often petechiæ on the skin. “I am firmly persuaded,” therefore, that “the only rational way of accounting for” the latent and collapsing phenomena, presented in Cholera and Cholera Infantum, is, to ascribe all to *Scorbutus*: take away the Scorbutic phenomena and there is nothing left. Dr. Good speaks of nausea and vomiting as usual phenomena in Land Scurvy; and the old authors speak of vomiting, purging, and even *Cholera Morbus*, as being symptoms of Scurvy. What were the acute, epidemic, collapsing and dying phenomena in Scurvy, in former days, in the time of Lord Anson’s voyages, when eight or ten died a day out of a common ship’s company, I have before explained, by quoting the descriptions of the disease then given, and although I have put the question to at least a dozen distinguished medical gentlemen, professors, and others, not one has ever answered it: nor what were the symptoms of Scurvy in infants. It may turn out that the collapsing phenomena in Scurvy were the same then, in both infants and adults, as now-a-days, seen in Cholera and Cholera Infantum. The truth is, there is no other known law than this latent condition of *Scorbutus*, this accumulative depravity in the system, that is adequate to explain the phenomena seen in Cholera and Cholera Infantum; and this does afford a rational and adequate explanation. Independent of any light from therapeutics, then, common sense calls for its adoption. But it will be shown in the proper place that therapeutics confirms what common sense approves in this interesting question.

PHENOMENA COLLATED—SYMPTOMS, COURSE, ETC.

CHOLERA.

"After watery diarrhoea, or other generally slight indisposition, vomiting and purging of a white or colorless fluid; violent cramps, great prostration and collapse, the last occurring simultaneously with the vomiting and cramps, or shortly after them. Should the patient survive the last train of symptoms, a state of excitement and fever supervene."—(*Dr. Brown, op. cit.*)

"In some cases the fever assumes the remittent type, and ultimately becomes intermittent."—(*Dr. Wood, op. cit.*)

"The commencement of the purging has sometimes preceded by several days the accession of the choleric stage; * forty-eight hours has been its mean duration, calculated from a great number of instances."—(*Dr. Brown.*)

"Which diarrhoea is the first stage of a serous hemorrhage, and collapse is the natural consequence of the loss of the serous part of the blood."—*Medico Chirurg. Review, Oct., 1833.*

"The more we see of cholera, the more we are convinced that the disease is a serous hemorrhage from the alimentary canal."—(*Ibid.*)

CHOLERA INFANTUM.

"Vomiting and purging, with fever, generally of the remittent type, irregular spasmodic convulsions; and rapid emaciation, attacking infants and children."—(*Dr. Copland—Dictionary.*)

"Most authors agree that the disease generally begins with diarrhoea, which after a few days, or longer time, even, is associated with vomiting.

"In slight cases there is no fever, at first. In severer cases there is often a febrile reaction from the beginning; while in very violent cases the earliest symptoms are those of collapse, generally soon followed by intense heat of the head and body, very frequent tense pulse, which subsides, after some hours, to give place to a more or less remission, or to a return of the state of collapse."—(*Dr. Meigs, op. cit.*)

"When the discharges are violent and very frequent, the muscles of the abdomen, and even those of the extremities, are apt to become affected with spasmodic contractions."—(*Dr. Eberle, op. cit.*)

"I have known a child put to bed early in the evening, seemingly well, to wake at ten o'clock and have twelve large, fetid, fluid evacuations before morning.

SCURVY.

"The precursive symptoms are lassitude, faintness, and pains in the limbs, so that business, or even company, is found fatiguing. After this, there are often shiverings, nausea and vomiting."—(*Dr. Good—Study of Med., vol. iii., p. 445.*)

"This species [land scurvy,] is sometimes marked by febrile paroxysms, with variable intervals, but usually occurring in the evening."—(*Ibid.*)

In Lind on Scurvy, the following are enumerated as symptoms of an attack, viz:

"Vomiting, retching, and even cholera morbus. A vomiting is known to be scorbutic:

"First, by not yielding to the common remedies.

"Secondly, its sudden unaccountable remissions, and equally unexpected returns.

"Thirdly, its seizing without any previous pain, disorder of the stomach, or disorder described by the ancients; but the most certain proofs are from the urine and pulse.

PHENOMENA COLLATED—SYMPTOMS, COURSE, ETC., CONTINUED.

SCURVY.

CHOLERA INFANTUM.

CHOLERA.

"The more elaborate secretions,—as those of the bile, urine and tears, cease, because the serous part of the blood finds an easier outlet through the exhalting surfaces."—(*Dr. Wood.*)

"The pulse will generally be found to be feeble and frequent; the skin, in point of heat below the healthy standard; the countenance shrunk, and if not livid, pallid."—(*Dr. Brown.*)

"In sudden and violent cases, the vomiting and purging are attended with the usual signs of exhaustion; quick, small pulse; coolness or coldness, with paleness of the surface, altered countenance, extreme languor, etc."—(*Dr. Meigs.*)

"Urine having a white, roundish, heavy sediment, like sand or brick-dust.

"The pulse peculiar to this malady, is quick and small, but particularly unequal."—(*p. 329.*)

"Hemorrhage is often profuse, cannot easily be restrained, and is accompanied with anasarous swellings.

"Rapid erosion or ulceration of the blood-vessels and discharge of blood, often accompanied with diarrhoea or dysentery."

—(*Dr. Good.*)

"The urine is scanty and high colored. The pulse is generally small, feeble and slow; and the skin below the healthy temperature; but cases occur in which the pulse becomes very frequent, and the surface febrile.

"Throughout the complaint, the tongue is usually clean and moist.

"Great emaciation usually attends the disease."—(*Dr. Wood.*)

"The purple eruption, for the most part, appears first on the legs, and after-

"The mouth is usually warm, and the tongue moist at first, and coated with a whitish, yellowish, or brownish-yellow fur."—(*Ibid.*)

"Simultaneously with the emaciation and œdema, aphthæ often appear on the tongue, cheeks, gums, roof of the mouth, and pharynx."—(*Ibid.*)

"Aphthæ finally appear on the tongue and inside of the cheeks."—(*Dr. Eberle.*)

"The tongue in this early stage is clean and moist."—(*Ibid.*)

"The features and whole body are so shrunk that the patient can hardly be recognized by his friends."—(*Dr. Wood.*)

"Various eruptive affections, resembling those of scarlatina, rubella, erysipelas, etc.,

PHENOMENA COLLATED—SYMPTOMS, COURSE, ETC., CONTINUED.

CHOLERA.

occasionally diversify the stage of reaction."—(*Ibid.*)

"M. Albert repeatedly noticed an eruption of lenticular papillæ, of a red color. * * * In one case it extended to the mucous membrane of the month, pharynx, nose and eyes."—*Med. Chir. Rev.*, vol. xviii., p. 457.

"In the progress of the fever, the tongue becomes black, and sordes accumulate on the teeth; the intellect torpid, though still the patient can be roused, but the moment conversation ceases, the eyes are turned up in the orbit, exposing, through the half closed eyelids the red sclerotics, and the patient is in a profound stupor."—(*Dr. Brown.*)

"Pneumonia, bronchitis, and pleurisy, also, not unfrequently occur; but the most dangerous affection in this stage of cholera, is perhaps that of the brain, characterized by severe headache, drowsiness, low delirium, stupor, coma, subultus tendinum, and sometimes by convulsion or paralysis.

CHOLERA INFANTUM.

"Petechiæ sometimes make their appearance on the skin."—*Meigs.*

"Towards the fatal conclusion spots of effused blood under the cuticle sometimes appear on various parts of the body."—*Eberle.*

"Petechiæ occasionally appear on the surface of the body, and a small vesicular eruption on the breast; the skin sometimes assumes a dull, dirty hue, and the conjunctiva appears blood-shot."—(*Dr. Wood.*)

"The little patient at last lies in a comatose and insensible state, with the eyelids half open and the globe of the eye turned up so as to completely hide the cornea."—(*Dr. Eberle.*)

"The fatal event is almost always preceded by symptoms indicating violent disease of the brain. These are drowsiness, passing into stupor and coma * * * convulsions, either general or local, which are followed by rigidity or paralysis of some of the limbs."—(*Dr. Meigs.*)

SCURVY.

wards, at irregular periods, on the thighs, arms and trunk of the body.

"The spots are frequent on the interior of the month, particularly the tonsils, where they are sometimes raised or papillated. It is here the first hemorrhage usually issues, though, as the disease advances, blood also flows from the nostrils, lungs, stomach, intestines and uterus, all of which organs, together with the heart, are sometimes found studded with spots on their surface, on examination after death."—(*Dr. Good.*)

"Along with the prostration of the vital powers, there is often displayed a strong tendency to local congestions of a low inflammatory character, attended with the effusion of blood or fibrin.

"These congestions and effusions may take place in the substance of the lungs, simulating pneumonia, in the cavities of the pleura, and pericardium, giving rise to dispnœa and fatal oppression; within the cranium, producing drowsiness, coma, and apoplexy.

PHENOMENA COLLATED—SYMPTOMS, COURSE, ETC., CONTINUED.

CHOLERA

"Intelligence is sometimes retained till within a few moments of the close."

CHOLERA INFANTUM.

SOURVY.

"The patient often retains full possession of his senses and intellect to the close."—(*Dr. Wood.*)

"The dejections are of a whitish color, thin and watery, resembling rennet whey, thin gruel, or rice water; and when allowed to stand, separate into a colorless fluid and a white flocculent insoluble matter, which subsides. They are sometimes tinged with bile, and a little blood is occasionally discharged."

"In some instances they are brown, or of a deep chocolate color
"The matter vomited is generally similar to the stools."

"The insoluble matter consists mainly of epithelial cells. The clear liquid is watery, holding a very small proportion of saline and organic substances in solution."—(*Dr. Wood.*)

"At first, the discharges from the bowels usually consist of a turbid, frothy fluid, mixed with small portions of green bile; or of a nearly colorless water, containing small flocculi of mucous." [Are not these epithelial cells?]—(*Dr. Eberle.*)

"The evacuations are, for the most part, thin and copious, sometimes colorless, but usually tinged green, yellow or brown—and not unfrequently deep green, * * not unfrequently tinged with blood. At an advanced period, they are often copious and dark colored or reddish, like the washings of putrifying flesh."—(*Dr. Wood.*)

"Generally, scorbutic persons are ineluctable to loose stools, at times, which in all are remarkably fetid."—(*Land, p. 114.*)

"Diarrhoea also, not unfrequently intervenes, with black, or bloody and offensive evacuations."

"Serous effusion, also, frequently takes place into the cellular tissue and closed cavities, and is sometimes so copious as to amount to a general dropsy."—(*Wood.*)

PHENOMENA COLLATED—SYMPTOMS, COURSE, ETC., CONTINUED.

CHOLERA.

"Forty-eight hours is the mean duration of the diarrhoea.

"The mean duration of the choleric stage varies from eight to twelve hours.

"After the patient has remained in the collapsed state for a variable period, perhaps for a couple of days, etc.

"The duration of such a febrile stage as we have described, is from a week to ten days, [fourteen days all told.]

"Convalescence is in many cases tedious: * * * slight irregularities of diet produce relapse—one example after two months; patient had remained feeble."—
(*Dr. Brown.*)

The mortality in the different ages and sexes was as follows, in Paris, in 1832:

Under 5 years of age,	24 in 1,000.
5 to 15 "	" 5 "
15 to 30 "	" 10 "
30 to 60 "	" 27 "
60 to 100 "	" 63 "
Men of all ages,	- 21 "
Women of all ages,	- 23 "

In the suburbs of Paris, the mortality of women was one-fifth greater than of men.—
(*Paris Report.*)

Total mortality in New York, from 1832 to 1853 inclusive, 12,044.—(*Semi-Centennial Report.*)

CHOLERA INFANTUM.

"The duration of cholera infantum is exceedingly uncertain. * * It often continues for weeks, or even for months.

It is not uncommon for a child to be seized with the disease in June, and continue more or less sick until the following October, or November; and in some few instances, it continues to have diarrhoea the greater part of the winter. The attack is very apt to last two or three weeks,

until some change in the weather occurs, or the residence of the child is changed."—
(*Dr. Meigs.*)

Mortality in Paris, 24 in 1,000.—(*Paris Report.*)

Total mortality in New York in 1849, 926.

Total mortality in New York, in fifty years 13,352.—(*Semi-Centennial Report.*)

SOURVY.

"It has no regular or stated termination. Dr. Willan has found it run on in different cases, from fourteen days to a twelvemonth and upwards."

"It is met with at every period of life, but chiefly affects persons of a weak and delicate habit, often children, principally women.

"If women affected with it be wet-nurses, their infants participate in the disease, from the milk not being sufficiently nutritious."—(*Dr. Good.*)

"No age is exempt from its attack—which, though severest with old people, yet was more incident to those of middle age."—(*Paris Report.*)

REMARKS ON THE COURSE AND SYMPTOMS.—A momentary comparison of the symptoms reveals that, according to reputable authorities, and, I may add, the general sense of the profession, the pathognomonic symptom of *developed* Cholera is *hemorrhage*: diarrhœa, vomiting, collapse, sudden death, or low, febrile reaction, being resultant phenomena. The *cause* of the hemorrhage is rationally explained in the fragility of the solids, from a want of the elements in the fluids, which M. Broussais affirms constitutes the essential nature of Scurvy—"defect of nutrition," in other words. Who doubts it? Again, the pathognomonic symptom of *developed* Cholera Infantum is *hemorrhage*: the invasion of the disease by watery diarrhœa, then vomiting, collapse, sudden death or febrile effort, too plainly proves the fact to admit of its refutation; and here, again, the whole matter is explained by the latent scorbutic diathesis having been inlaid from "the milk not being sufficiently nutritious," as Dr. Good says, or a "defect of nutrition" from "imperfect assimilation," as M. Broussais declares.

And once more, *hemorrhage* is, and ever has been, so associated with scurvy, that the species, *purpura hemorrhagica*, or land scurvy, has received its specific name from this, the most prominent symptom under a full development of the disease. What more can be said, then, of Cholera and Cholera Infantum than that they are modified forms of *land scurvy*? nothing, it appears to me.

This conclusion, however, may, probably, be opposed by many at first. There are numerous physicians, and some of more than middling pretensions, who take as circumscribed a view of scurvy as they do of a pleurisy. They believe it to be a uniform disease in its characteristics of lingering debility and tumefied gums, and that there is nothing more of it; having derived their only knowledge of it from the meagre descriptions contained in modern standard works on practice. Although they may have practiced medicine twenty, or even forty years, they have never seen a case of scurvy, so they say, and yet have blindly treated numerous cases of it, in nursing women especially—that form of it called "*nursing sore mouth*"—and in their infants also, that form of it called *Cholera Infantum*—many of whom "participate in the disease

from the milk not being sufficiently nutritious." Yet, these *competent judges* hesitate not to decide at once that my views are erroneous! They even *ridicule* the idea that Cholera and Cholera Infantum are of scorbutic character. Nevertheless, I esteem all *such* opposition as negative proof that my views are tenable and true.

The Protean manifestations of scurvy will have to be studied afresh, the old authors revived, and new researches made in the directions I have indicated, by *Commissions*, of physicians distinguished for their high attainments in practical medicine, and my views reported on before the unbelieving Thomases of the profession will be satisfied. The appointment of such commissions by the Academies of Medicine in all countries, I most respectfully solicit. I desire them formally to consider the new views I have offered, and to report on the same. The interests of humanity demand it without delay, the cause of medical science also. If a learned Commission of physicians in London could gravely consider, test, and issue a report on the alleged efficacy of castor oil, as a remedy in Cholera, surely I may hope for the like respect being paid my papers by the Academies and Institutes of Medicine in all countries without further solicitation. There is no government but what is deeply interested in this matter, and no commission, governmental or otherwise, could so far compromise its honor as to report erroneously: any commission must report the truth, or assume the responsibility of casting its decision on the side of error, which would be an unfortunate affair for its members, as truth cannot long lie extinguished.

PHENOMENA COLLATED—ANATOMICAL CHARACTERS.

CHOLERA.

"The venous system is distended, especially the large veins and right side of the heart, which is gorged with a black, viscid, imperfectly coagulated blood.

"Almost all parts of the body, the brain and spinal marrow, the substance of the heart, the abdominal viscera, the limbs, even the spongy substance of the bones, exhibit signs of venous injection; and large echymoses are frequently found in all the parenchymatous glands.

"The mucous membrane throughout nearly its whole extent, is more or less red-
 *dened, and the parieties of the bowels are somewhat thickened by this venous injection. Patches of echymoses are also frequent in their coats. In many cases an eruption of minute semi-transparent vesicles has been noticed, very closely arranged, and extending from the duodenum to the ilio-cæcal valve, and even into the colon, a mere elevation by a serous fluid of the epithelium.

"The whole alimentary canal is distended with the same whitish liquid of which the evacuations consist, often mixed with a dark reddish or chocolate colored liquid, which probably owes its color to effused blood.

CHOLERA INFANTUM.

"According to Dr. Condie, if death take place early, an unusual paleness of the mucous coat and more or less hepatic congestion are often the only morbid appearances discoverable; but Dr. Hallowell states that there is undue development of the follicles of the stomach and intestines, or of one of those organs, without inflammation of the mucous membrane.

"At a more advanced stage there is generally some indication of inflammation; the mucous membrane of the stomach and bowels exhibits more or less redness in points and patches, and an increased development of the glandular follicles.

"Dr. W. E. Horner found the mucous follicles in great numbers enlarged, and even ulcerated, both in the small and large intestines.

"The gastric mucous membrane is sometimes very soft, so as readily to be scraped off by the nail.

SCURVY.

"The most characteristic phenomenon revealed by dissection is the presence of extravasated blood, in a greater or less amount in various parts of the body. The purple spots on the skin are nothing more than so many echymoses in its substance.

"Similar purple or blackish stains are observed in the mucous and peritoneal coats of the bowels, and the mucous coat is often stained with effused blood.

"Clots of extravasated blood or colored fibrin are often found in the cellular tissue, the substance of the muscles between the pericostium and bones, and occasionally in the serous cavities.

"Coagula of blood or of fibrin are found in the cavities of the heart, and thin liquid blood in the great veins.

PHENOMENA COLLATED—ANATOMICAL CHARACTERS CONTINUED.

CHOLERA.

"The lungs are sometimes edematous.

"In death, after reaction, the rice water contents of the bowels give place to bilious and bloody fluids. Instead of the dark shade of venous congestion, there is now the vivid redness of an unequivocal inflammation in the alimentary mucous membrane, which is also sometimes softened or otherwise changed, and the mucous follicles exhibit marks of incipient ulceration.

"Lesions in the various nervous centres and their investing membranes, such as might be expected from the symptoms during life, and not unfrequently decided evidences of inflammation of the lungs are observed."—(*Dr. Wood.*)

"In consequence of the intestinal exhalation the mucous membrane swells, and resembles a very fine porous sieve. This membrane is tumified, spongy, etc."—(*M. M. Girardin and Gaimard's Report on Cholera in Russia and Prussia; Paris, 1832; p. 134.*)

CHOLERA INFANTUM.

"Dark livid or purple spots have been observed upon the exterior surface of the stomach and duodenum.

"The bowels usually contain green yellowish or colorless mucous.

"In cases which have exhibited hydrocephalic symptoms before death, the brain is either generally or partially softened.

"Serous effusions in the ventricles or upon the surface, and thickening and opacity of the arachnoid have been observed."—(*Dr. Wood.*)

SCURVY.

"Serous effusion, transparent or colored with blood, is also found in the cellular tissue, the serous cavities and parenchyma of organs, especially the lungs.

"When not colored by effused blood, the muscles and mucous membranes are pale.

"Though generally free from bloody extravasation, the ventricles of the brain frequently contain considerable quantities of serum."—(*Dr. Wood.*)

The minute morbid anatomy of the gastro-intestinal mucous membrane has not been studied in scurvy by modern scrutiny, that I am aware of.

REMARKS ON THE ANATOMICAL CHARACTERS.—It is very apparent, then, from the anatomical characters, that the morbid condition in these supposed three diseases, is essentially the same. The sponginess and fragility of the solids, and the escape from the vessels of the fluids, are the striking characteristics.

PHENOMENA COLLATED—PATHOLOGY OF THE BLOOD.

CHOLERA.

"The most remarkable and obvious change, is the singular increase of the proportion of the solid matters to the watery portion :

"Mean proportions, {	Water, 630.0
	Solid Matters, 370.0
	<hr/>
	1000.0
	—(Busk.)

"I have not detected any considerable changes in the fibrin, albumen, and coloring matter.

"The relative diminution of the alkaline carbonates is always appreciable, sometimes indeed to such a degree, that they can with difficulty be detected; and since these salts, as well as albumen and extractive matter, which has been compared to caseazone, are found in the stools, we may fairly attribute the increased thickness of the blood to the draining of the serous part by the intestines.

"The fibrinous portion was not found defective."—(*M. De Caus, Médico Chirurg. Rev., vol. xviii., p. 515.*)

CHOLERA INFANTUM.

"I am not aware of there having been any analysis of the blood of infant subjects in cholera.

Healthy Blood, {	Water, 788.8
	Solid Matters, . 211.2
	<hr/>
	1000.0
	—(Busk.)

"Mean proportions, {	Water, 844.0
	Solid Matters, 156.0
	<hr/>
	1000.0
	—(Busk.)

"In relation to the organic constituents of the blood, it appears from a comparison of the analyses most to be relied on, that upon an average, the proportion of albumen is about as in health; that of fibrin slightly increased, and that of the red corpuscles greatly diminished.

"Some interesting experiments have been made by Dr. Garrod, of London, which direct attention to *potassa* as the ingredient of the blood, a deficiency of which may be the characteristic pathological condition of scurvy.

"Dr. Garrod found that the blood of a scorbutic patient, examined by himself, contained a much smaller proportion of *potassa* than healthy blood."—(*Dr. Wood.*)

REMARKS ON THE PATHOLOGY OF THE BLOOD.—The relative diminution, from the normal standard, of the serum to the clot, is then, the most striking fact in regard to the blood in Cholera; and its relative superabundance, the same in scurvy. Now it is plain, that if the hemorrhagic law in scorbutus goes into effect, and the serum leaks through the sieve-like porous membrane of the bowels, the morbid state of the blood will be reduced to that in which it is found in Cholera.

The longer a case of scurvy has run, and the more prostrate the patient, the thinner the blood; the choleric, as well as other scorbutic hemorrhage, is often set up in persons supposed to be well, who have labored but a short time, perhaps, under the scorbutic diathesis: and thus, analyses of the blood in Cholera and scurvy must vary more or less, as the blood will vary in the different stages of the same disease.

The soluble salts of the blood in Cholera are, of course, lessened, being carried off in the serum discharged by stool. They are generally in excess in scurvy, because held in solution in the superabundant serum present; but, according to Simon, the excess is owing to the *detritus* of the solids in the road of excretion, as is also the excess of fibrin—the more rational view. Hence, acids are useful or remedial, from their chemical reactions on the worn out detritus, or basic principles in the blood, as well as by their styptic action on the solids, antiseptic virtues, and power of facilitating the excretion of effete matters by urine, etc.

Whoever, then, can unbiasedly examine the above collated phenomena of the supposed three distinct diseases and not discover the same great, leading pathological condition in all, a dreadful lesion of nutrition, arising from the same general cause, defective alimentation, or assimilation; involving the same classes of subjects, viz: the poorly fed, the fragile, the very young, the very old, the weaker sex, etc.; must be constituted for a keener perception of differences than of analogies; must have a relish for nosology, and a distaste for philosophy; must be a lover of the marvellous, the hypothetical, and the obscure, rather than the plain, rational, and truthful; at least, so it appears to me, for who does not see the great leading feature to be *hemorrhage* in all three of the sup

posed distinct diseases? no matter whether white, red, black, or blue, be the blood that is exhaled or infiltrated. No matter from what tissue it escape, it is, after all, but the sign manual of *scorbutus*. No matter whether vomited, purged, spit, micturated, coughed, sneezed, or otherwise liberated, the principle is the same, the pathology the same. Who does not see the same overwhelming, great, and sudden law of *collapse* claiming Cholera and Cholera Infantum to be, unmistakeably of scorbutic character? Who does not see the solids vanishing into thin air; the softening and disintegration of all the tissues; the ramollissement of the brain; the sponginess and porosity of the mucous membranes, and consequent leakage; the same of the dermoid tissues, and consequent petechial ecchymoses; the same softening of, and infiltration in, parenchymatous structures—in a word, the impoverished blood, and the all but sphacelating solids; with such feeble reaction as the starved powers of life are able to manifest? And who so blind as not to see that, the acids which congregate albumen, harden the tissues, and by their chemical reactions promote excretion, are the rational therapeutic remedies, aided by tonics, astringents, vinous stimulants, and the concentrated elements of a wholesome nutrition?

EVIDENCES DERIVED FROM THERAPEUTICS.

The evidences derived from the administration of remedies are numerous. They might be made to embrace a lengthy analysis of cases, running through a series of twenty years; but as this essay is already extended to a greater length than was designed in the outset, and more especially as I dislike to detail cases, possessing as they do generally, much similarity, I will but succinctly elaborate this head, barely sufficient to show with clearness the testimony derived from treatment of the correctness of the great truths I have enunciated. Happily, I will be greatly aided in this branch of my subject by second testimony, drawn from the cases of British practitioners, which will have more weight than self-attested cases; still, I will present a few cases of my own as types, and give an outline of the treatment that has proved successful

in scores of others, if not hundreds, all told, of all degrees and shades of ailment in the same category.

It matters not to me whether a condition of system pathologically calling for medical aid manifests itself by symptoms called cholera, cholera infantum, or puerperal anemia, or hydrocephalus, or any other name derived from the most striking or prominent symptoms present; so that upon a careful review of all the circumstances attendant upon the history and aspects of the case, I judge defective alimentation to lie at the bottom of it, or want of power of assimilation, and hence impaired nutrition; or if I discover the system is robbed of nutrition from nursing or diarrhoea, or other exhausting discharges, I hesitate not to consider it a case involving a scorbutic condition of the system or a lesion of nutrition, and treat it accordingly: and the successful results that have attended this practice through a long series of years, particularly in that form of disease called in this country the nursing sore mouth, or puerperal anemia, which I have elsewhere shown to be Scurvy not recognised, and in the infants participating in this disease from the milk not being sufficiently nutritious, the affection in them taking on the form of cholera infantum—the successful results, I say, of twenty years' practice in the treatment of a goodly number of such cases with anti-scorbutics, as lemonade, orangeade, vinegarade, punch, vegetable food and fruits, beef-steak gravy with currant jelly, nutritious soups, highly nutritious cow's milk, etc., settles the matter in my mind; with me it is knowledge gained by experience, that Cholera Infantum is Infantile Scurvy, however unable I may be to impress this knowledge or conviction on others.

The medical mind of the age, I fear, is too intent on particularizing or studying secondary lesions and trifling differences in symptoms—splitting hairs and classifying the fragments—or too little disposed to generalize by ascending to the primary pathological condition in the diagnosis of disease. The practitioner, in a malarious district, so called, is forced into generalization, for he finds himself unable to cure maladies, both local and constitutional, with the ordinary or routine remedies. The ophthalmias, the diarrhoeas, the cholera mor-

buses, the rheumatisms, the gastralgias, the dysenteries, the ulcers, the neuralgias, the puerperal fevers, even, and many other forms of disease that could be mentioned, only yield to the great and unaccountable influence of quinine. He is mostly self-taught in this school of experience, however. To be sure he has heard of *masked agues*, but he always supposed there were some features uncovered, some trace of the form, shape or outline of an ague to be seen, by which he would know it to be a masked ague. But no, he only learns to suspect the difficulty when the commonly used medicines fail, and only finds it out *positively* by the proofs of treatment, the successful administration of quinine.

Just so it is in scorbutus; and as a writer on scurvy, whose views are given by Lind, observes, it comes in all manner of forms—such as, “a looseness or costiveness of the belly—a bastard dysentery, the blood unmixed with the fœces—fainting fits—difficulty of breathing—a bastard pleurisy—atrophy—erysipelas—pestilential fevers—intermittent fevers—madness—a profound sleeping—a salivation—a languor without any evident cause—copious sweats—a tossing or concussion of the limbs, being a mixture of a paralytic and convulsive disorder;” or, as described in Lord Anson’s Reports: “this disease is surely the most singular and unaccountable of any that affects the human body. Its symptoms are inconstant and innumerable, and its progress and effects extremely irregular; for scarcely any two persons have the same complaints, and when there hath been found some conformity in the symptoms, the order of their appearance hath been totally different. It frequently puts on the form of many other diseases. * * * It is not easy to complete the long roll of the various concomitants of this disease; for it often produced *putrid fevers*, pleurisies, the jaundice, and violent rheumatic pains.” And the proof of this is, that nothing but anti-scorbutic treatment will cure.

I have somewhere seen it stated by a respectable medical writer, that a case of scurvy fell under Dr. Elliottson’s care, where a former attendant had extracted several of the patient’s teeth, and a still more distinguished practitioner had pronounced it a case of *fungous hematodes* of the gums! and

I have verily seen a whole medical society of respectable, if not extraordinary attainments, nonplussed and divided in sentiment as to the cause of death of an esteemed medical brother, who had died by inches with an anomalous disease that I should have called scurvy, all having been anxious bed-side observers, and the post-mortem appearances carefully reported—some said typhus fever, some one thing, and some another, but no one, however, hinted that it was scurvy.

The view taken by some that Cholera Infantum is a malarious disease, shows a leaning towards generalization to be sure, yet unfortunately it throws the etiology upon the baseless fabric of an hypothesis; but if intermittent fever is one form of scorbutus, as above quoted from an old writer in Lind, (which I neither affirm nor deny) a ready explanation is found of the *methodus medendi* of quinine and all that class of vegetable alkaloids, and their salts—they act antiscorbutically: just as potash and soda and their salts act, and other vegetable organic principles, acids, etc., quinine being captain of the host.—They restore lost elements to the blood, and by their chemical reactions and impressions on the nervous system facilitate the excretion of effete matters by the kidneys, skin, etc.

CASE 1.—A young mother laboring under the nursing sore mouth, *alias* land scurvy, having an infant some five or six months old laboring under Cholera Infantum, fell under my care in December last, (1854) after a summer of uncommon heat and drought, a general blight in vegetation, and an unusual scarcity of vegetables and fruits, the stinted supply commanding the most exorbitant prices, quite beyond the reach of the poor. The family was so destitute that when I was called it was supported wholly by charity. The heads of the family were foreigners. The father could get no work, and the starved mother was exhausted by diarrhoea and bloody flux, which had alternately held her since July, soon after the birth of the starveling infant that had now exhausted the last drops from her withered breasts—lactation was totally suppressed. The mother was considered at death's door, and had received the last sacraments of the church preparatory to her dissolution, the day I was requested for God's sake to

attend to her and the miserable specimen of humanity in the shape of the infant.

The symptoms of both mother and child, so nearly coincided in all essential particulars, that a description of the phenomena in one will answer nearly equally well for the other. Vomiting more or less every day in the mother's case—this symptom had now subsided in the child—purging in both to the number of eight or ten evacuations a day—exhaustation—pallor—cool, corrugated, skin in both, with numerous inflamed patches and papilla in the infant—feeble remittent reaction in the infant, intermittent and of the tertian type in the mother—hyperæmia of the gums, fauces, and arches of the palate especially, with ulcerations of portions or patches of the buccal mucous surfaces—mouths moist, even to profuse salivation in the mother—tongues red and sore at the tips, and the mother's very sore, aphthous, and chopped along its edges—piles and prolapsus ani in mother, excoriated anus in the infant—dreadful bearing down and painful condition referred to the womb, in the mother—great and overwhelming epigastric distress in the mother—fainting even to swooning in the mother, on several occasions—pain and dreadfully distressing noises in the head in the mother—lethargic dullness and sleepiness amounting to sub-coma in both—great emaciation in both, but more remarkable in the mother—a few petechiæ of the ecchymosed kind on the limbs and back of the mother, and large ecchymoses on the sacrum, none of this kind of petechiæ, or spots of purpura, on the infant, but hundreds of papillated or urticated petechiæ, that is, a kind of nettle-rash or blotchy eruption resembling mosquito bites, popularly called “hives,” and characterized by intolerable itching. Successive crops of these wheals surrounded by a crimson efflorescence, having their itching period of a day or two, then declining and giving place to another crop somewhere else, are among the most common phenomena of Cholera Infantum, and yet this eruption has not generally been noticed or spoken of by authors; only the lenticular petechiæ or dermoid ecchymoses that precede death. The dejections of both mother and infant varied, being sometimes yeasty, at other times watery and greenish, or pasty and chocolate colored, and ex-

tremely foetid, as all authors agree is ever the case in Cholera Infantum; and Lind says, "scorbutic persons are inclinable to loose stools, which in all are *remarkably* foetid." Appetite remaining in both mother and infant, without the power of digestion; even boiled milk would pass the bowels in a half curdled state in the infant, and yeasty and foaming in the mother's case.

Now the indications in these cases appeared to me to be the same, for I could really trace no difference in the true cause and essential nature of those ailments. Partial starvation was evidently the primary or remote cause, a want of the elements of nutrition, and a collapse of the powers of life was the consequence. The symptoms were but so many voices declaring this, declaring the difficulty to be scorbutus. The scorbutic type of fever, the scorbutic foetid diarrhæa, the scorbutic tendency to disintegration of the tissues, the scorbutic appetite; and the objective signs but echoed these wailings. The palor of countenance, the great emaciation, hyperæmia of the tissues of the mouth, the urticated crimson efflorescence, petechiæ, and ecchymoses of the skin, all spoke the same language; there was no confusion of tongues. The indications therefore, I say were plain, viz.; to quiet the irritability of the stomach and bowels, and supply wholesome nutrition, together with suitable tonics and stimulants to aid digestion and assimilation. Dr. Rush, and other authors speak of this condition in Cholera Infantum—appetite with but the feeblest powers of digestion, which should be expected in a starved scorbutic condition of the system. Dr. Rush, and others too, have not only recorded the natural pantomime of this condition in Cholera Infantum, cravings for food, even solid hearty food, and gravies of the richest quality and highest flavor; but they have also left the record that a reasonable indulgence or gratification of these longings was not detrimental, not injurious, but seemed to favor recovery. [See what this celebrated writer says, in his medical Inquiries, Vol. I. p. 156.] What proofs could be adduced more emphatically corroborating my views of the scorbutic nature of the disease? I have already spoken of the natural pantomime cravings for fruits evinced by infants, and which all practitioners—without much

philosophical reflection I must conclude—assume must not be indulged in Cholera Infantum, must not be gratified in any stage of the affection. How unnatural! My own convictions are, that if all breeding and nursing women could have plenty and variety of good animal and vegetable food; were enjoined to indulge in the free use of oranges, lemons, apples, and all kinds of fruits, jellies, pickles and salads; and infants at the breast were allowed, in addition to the rich vegetable milk emulsion which such a dietary on the part of the mothers would afford them, to suck oranges and roasted apples, and to have lemonade, vinegarade, etc., as freely as their pantomime inclinations seem to demand, and this course adopted early and persisted in through infancy and early childhood, Cholera Infantum would be nearly banished from the catalogue of human diseases.

Conversing on this subject the other day, with a prominent physician of this city, he observed in confirmation of my views; that he had known an instance of a child being cured of Cholera Infantum by eating freely of ripe currants. Black-berry jelly and cordial are popular remedies. The difficulty lies in the too great abstinence, either from necessity, as after blights, or by medical direction, for a long time, as through the winter and spring; under which circumstances a free indulgence on the summer opening, might prove mischievous. Lind says, that "summer vegetables and fruits, generally upon first using, open the bowels, promote urine plentifully, and restore perspiration; but if voraciously eat, induce a dangerous flux of the belly;" and that, "after a long abstinence from greens and fruits, scorbutic persons should be treated like one almost starved to death; that is, not permitted for a few days to eat voraciously, or surfeit themselves with them; otherwise they are apt to fall into a dysentery which often proves mortal." The popular belief, therefore, that summer vegetables and fruits induce Cholera and Cholera Infantum, and also the injunctions of physicians to abstain from their use, is founded partly in truth; but the *main* truth in the argument, that which gives it all its force, the scorbutic predisposition of the system, is left out of the proposition. In infancy and childhood, during the most rapid growth, there is the

greatest need of all the salts of the mineral bases that enter into the fabric of the human system, such as lime for the bones, potash for the muscles, etc., etc., etc., of which I have sufficiently spoken, and which are *only* elaborated in the juices of vegetables and fruits, and the *want* of which is probably the cause of the pantomime longings and cravings for fruits in Cholera Infantum. The same pantomime longings and cravings exist in Scorbutus, proving the identity of the supposed two affections: the true pathology, most probably, is the want of fresh supplies of all the organic salts of the blood. The blood-thirsty carnivorous animal protects itself from Scurvy by the salts in the blood of its victims, while the herbivorous animals are protected through the salts in vegetation, and omnivorous man has both sources before him. The natural pantomime of the blood-thirsty carnivorous animal, that often kills only to suck the blood, proves this view. But to return from this digression.

Fortunately this poor, distressed family was under the care of the Benevolent Relief Society, and whatever was ordered by me was supplied. I prescribed for both mother and infant as follows:

R. Tr. Rhei Comp.,
 Tr. Catechui,
 Mucilage Acaciæ,
 Syr. Simpl. & a ℥i.
 Morph. Acetat. grj.
 Sodæ Bicarb.,
 Ammon. Carb., & a ℥j. M.

Of this mixture the mother was ordered a teaspoonful, in a small draught of good brandy toddy, every three hours; and the infant forty drops, in a teaspoonful or two of the same, at the same intervals. I have found this mixture to answer the purpose of quieting the irritability of the stomach and bowels, arresting vomiting and purging, and correcting the green and foetid passages in so many cases, that I often rest the fulfilment of the first indication on its administration alone, in Cholera Infantum; particularly when the infant is still at the breast, and I can thus be sure of conveying lemon juice and other anti-scorbutics, to the little sufferer, through

the medium of its mother's milk, by enjoining upon her an ample anti-scorbutic dietary, and strengthening her digestion with quinine and good punch daily. This mixture is well adapted to the therapeutics of infants and children, in not being repulsive to the taste, but, on the contrary, agreeable; they universally like its flavor, and not unfrequently cry for more, after quaffing each dose.

The dose and intervals of its administration are, of course, to be regulated by the urgency of the symptoms, bearing in mind that there is one fourth of a grain of morphine in every ounce, and that while vomiting is present, there is but imperfect absorption. To adults, I have frequently given half an ounce, in an ounce of toddy or sweetened water, and repeated it after each recurrence of vomiting, till the four ounces were taken, and that in the space of an hour; and have had the happiness, generally, of seeing it succeed in perfectly overcoming the irritability of the stomach and bowels. For infants and children, from twenty or thirty to fifty or sixty drops, and even to a teaspoonful, according to age, sufficiently diluted with sweetened water, repeated in like manner in urgent cases, is the preferable mode of administration. In protracted cases, a suitable dose, according to age, every three or four hours, so as to keep up a constant impression of this quieting, astringent, and stimulating anti-scorbutic mixture, is the best mode of administration, and seldom fails to overcome the irritability of the stomach and control the diarrhoea, in two or three days at farthest. In addition to the above prescription, I made the following:

R. Pulv. Acid. Citric. ʒj.
 Quiniae Disulph. gr. xvi.
 Morphiae Sulph. gr. ij.
 Spit. Vin. Gall. opt. Oij. M

Of this mixture the mother was ordered a table-spoonful, in two or three table-spoonfuls of hot water, sweetened generously with loaf sugar, three times a day, at noon, at evening, and at bed-time. The stomach is in general too sensitive to the impression of stimulants in the morning. The infant was ordered a small tea-spoonful prepared in the same manner, sufficiently diluted with hot water sweetened, and to be taken

at the same intervals and hours of the day. The indications to be fulfilled by this are obvious.

The mother was ordered the best of fresh beef, and potato soup well seasoned with table salt and Cayenne pepper, and of good wheat bread, toasted and crumbed in, a little; also as an alternating dish, choice Irish potatoes, boiled, mashed in the pot, and well seasoned, to be eaten in boiled milk as spoon victuals. This dietary to be but sparingly partaken of at first, treating the patient in this respect as a starveling should be treated.

The infant was ordered to be provided with a bottle and India-rubber nipple, and the undiluted milk of a fresh young cow, this to be boiled and suitably sweetened with loaf sugar, and five grains of bicarbonate of soda to be added to each pint. Of this the infant was to partake sparingly at first, and the allowance increased as the stomach should be found able to appropriate it.

In three days' time the irritability of the stomach and bowels was mostly overcome in both, and before the end of the week, the alvine discharges were nearly natural, and both mother and infant were able to digest at least half rations. At the end of three weeks both were not merely convalescent, but I may say well, and rapidly improving in flesh.

I should have mentioned that the mother was supposed by the benevolent ladies to be in the last stage of consumption, owing to a distressing cough, difficulty of breathing, pains in the chest, and abundant expectoration, which seemed to them to constitute the most formidable ailment in the case.

With regard to the use of brandy as a remedy in this affection, (made the menstruum in the foregoing prescription,) I deem it not only admissable in all stages of the disease, but very remedial and salutary in its operation. Its power to harden delicate tissues and restrain excretion is familiar to all, as well as its cardiaco-vascular power, and it affords a resource and a reliance, therefore, of vast importance in urgent cases, unfavorable changes and relapses. On the second day of my attendance on the above cases, the mother had a sinking, fainting, or swooning fit, it being the day of apyrexia in her

case, and I gave her during the day, with the happiest effects, half-a-pint of the best brandy. A salutary perspiration ensued that night, and an evident mitigation of all the urgent symptoms. Champaigne wine is an excellent adjuvant remedy, and may be allowed infants freely. Soda powders are very remedial, and particularly grateful, or what is of easier administration to infants, small vials of fountain soda water, with a grain of bicarbonate of soda to the ounce added, and kept cold with ice. they will often quaff it from the vial. The happy effect of carbonic acid on morbidly sentient mucous surfaces is well known.

CASE 2.—The history of this case discloses the condition of another family that fell under my care in August last, (1854,) a native family, and in the higher walks of life—a rather wealthy family. The mother was a pale lady, æt. about 38, constitutionally enfeebled by breeding, and care-worn during the hot summer from unceasing devotion to her sick infant, and the melancholy fact that the father was becoming insane! Pale and haggard and wholly incapacitated for business, and laboring under a melancholy madness, he was despatched to an insane asylum, early in August. The infant at the breast, some nine or ten months old, had Cholera Infantum in an aggravated form, then in the chronic stage, or of six weeks standing, and besides the incessant wearing affection of the bowels, its head and shrunk neck were covered with a sheet of angry indolent biles, neither disposed to suppurate nor to heal. At length convulsions set in, when my medical attendance in the family commenced, though I had been an observer of the family's condition for weeks before.

The infant was lying on its mother's lap, pale as a corpse, nearly pulseless, the extremities becoming cold, the discharges from the bowels copious, watery and foetid, and vomiting and convulsions had supervened—a sudden relapse. I ordered artificial heat to the surface, and gave the infant, instantler, liberally of brandy toddy; dispatched a messenger with a prescription for the rhubarb mixture, and ordered half-teaspoonful to be given after each recurrence of vomiting, and when that should cease, at intervals of three hours. The

vomiting soon ceased, the convulsions did not recur, and before evening, (this was in the early part of the day,) the diarrhoea was greatly controlled, and the aspects of the case were altogether changed for the better.

I then directed my attention to what I considered the root of the difficulty, the condition and dietary of the mother. She was evidently laboring under Puerperal Anæmia, or the Nursing Sore Mouth; her milk had nearly failed, and the infant was in that critical state, through the hot months, that often obtains, holding on to a diseased mother's scanty supply, alternated with the arrowroots and other feculas so much in vogue, but which are wholly destitute of those succulent principles and soluble salts the blood needs. The mother was ordered a very nutritious diet, the best meats and vegetables the markets afforded, together with brandy punch and lemonade, as much as she could manage; especially she was enjoined not to stint herself in the use of brandy and lemons. She religiously followed directions, and in twenty-four hours the breasts responded with sensibly increased supplies of milk. In a week she had comparatively a flowing breast, began to regain her strength and color; and the infant immediately responded to this improved quality of its supplies; the diarrhoea soon ceased entirely; the biles began to fade away, and in ten days had disappeared altogether; and the infant rapidly regained its health without the administration of any other medicine than the rhubarb mixture; under precisely the same circumstances of heat, habitation, etc., it had sickened—without country air or going to the sea-shore. I should have observed that the infant was under the administration of blue pill, etc., when I was called in, which of course was discontinued, mercury, in my judgment, being generally contra indicated in this affection, certainly in the protracted stage of it. Concentrated nutrition is then imperiously demanded, and I have found roast beef gravy and currant jelly much more salutary. Kramer says, "The Scurvy is the most loathsome disease in nature, for which no cure is to be found in your medicine chest; beware of bleeding, *shun mercury*, but if you can get green vegetables, if you have oranges, lemons, or their pulp or juice preserved with sugar, so that you can make a lemon-

ade, or rather give to the quantity of three or four ounces of their juice in whey, you will, without other assistance cure this dreadful evil." It has been urged against the scorbutic theory of Cholera that calomel is efficacious in this disease, but pernicious in Scurvy. Now it may be a good cholagogue purge in the first stage, when there is portal congestion, and a very injudicious drug in the latter stage, under prostration and ulceration; though the immediate good effect claimed, of large doses of calomel, seems more satisfactorily explained by the stypticity of the chloride, and its mechanical obstruction to the oozing capillaries; just as we see its desiccant effects in excoriations. It is not a quick purge, and if the good effect, the unloading of the portal system, were the mode of explaining the good operation of calomel, as we empty the uterus to arrest hemorrhage of that organ, castor oil would be the preferable purge. I have found a purge of calomel or blue pill an excellent first remedy in acute attacks of scurvy with great epigastric fullness and distress, and I have treated the same condition with cream of tartar and sulphur, with equally happy effects. Admitting the good effect of calomel in Cholera and Cholera Infantum then, does not militate against my views at all.

But the chapter of accidents is not yet fully told, pertaining to the history of this case. A brother of the infant, some fifteen years old, during the week I was in attendance, was taken suddenly one hot night, on retiring to bed, with an alarming hemorrhage from the lungs! He was thought to be in good health, no consumptive ailment had ever affected either branch of the family ancestry; he had no cough, save that caused by the hemorrhage; had suffered several attacks, however, of epistaxis, during the summer.

I regarded this case as strictly a scorbutic hemorrhage, and treated it accordingly, with rest, cream of tartar with a little powdered jalap, formed into an electuary, with lemon syrup as a purgative; lemonade as a drink; and potatoes and milk, and soups, as a dietary, with a free allowance of fruits. The hemorrhage recurred several times in the course of a week, and a pint of blood, perhaps, was coughed up in all. After the system became well saturated with succulent vegetable

nutrition, there was no more hemorrhage, and no indisposition or bronchial difficulty was left, or has since supervened to this time, April, 1855. The only objective signs of Scorbutus, to be seen in this patient, were paleness of countenance and hyperæmia of the arches of the palate.

The above described infant's case illustrates the whole matter of Cholera Infantum, stomach, bowels, and brain, and also the rational treatment. It also illustrates its etiology. A mother worn down with domestic devotions—a model of a mother as ever I saw, in all the self-sacrificing duties to her offspring: a father whose sole object was business at the desk for twenty years; both were attenuated and enfeebled; and here was an offspring, begotten, bred, born, and nourished from the breast under these untoward circumstances, during a year of intense heat, drought, blight, and scarcity; and the cholera either fully epidemic or sub-epidemic in nearly every city in the Union.

One item more in the premises remains to be chronicled. Late in October, or about the first of November, the father returned to the bosom of his family, with the "*mens sana in corpore sano*," weighing some twenty pounds more than when he left home; evidencing the effect of change in his dietary, change of air, change of scene, change of everything, on a habit enfeebled by confinement to business; and found wife so plump that she might be considered rejuvenated; infant daughter so fat that her skin could hardly hold her, weighing all but double what she did in August; and son sound, active, and rejoicing in his strength.

CASE 3.—In July last (1854,) Mrs. G——— was brought to bed under my attendance; and after all was over, and she was changed and comfortably disposed of in a clean bed, she took on a sinking fit, from which she seemed not likely to recover—not exactly fainting or syncope, for it was attended with consciousness and universal distress, moaning, jactitation and cramps. Brandy, laudanum, smelling salts, aspersion, rubbing, a rapid appliance of restoratives finally brought her out of the collapsing fit; the cause of which was revealed by the prominently objective signs of Scorbutus discoverable in the mouth. The like phenomenon after delivery was familiar

to me, having seen it result in death in sundry instances. I visited her the next day, and left directions for her to have wine, and good support by way of food. I called again on the fourth day, and arrived just after she had sunk into another collapsing fit of great distress and imminent peril—caused by a dose of castor oil she had taken of her own accord the evening before, following the pernicious custom she had been advised to pursue by her medical attendant in her previous accouchments. It had operated three times, and the shock had nearly killed her. Restoratives again brought her through. She was a delicate, feeble woman, and her husband a pale in-doors worker, a gunsmith. The children all bore the marks of their feeble parentage. The next older child than the infant just born—a little boy twenty months old—was laboring under a prolonged drag of Cholera Infantum, of more than a year's duration, from which he had only been respited a month or two during the previous winter season.

The diarrhoea was becoming more and more aggravated, and the little fellow was nearly thrown off his feet. He could totter about a while, but had to lie most of the time—five or six, some days eight or ten passages, of the peculiarly foetid, watery kind—constant thirst—vomiting frequent—cutting the molar and bicuspid teeth—hungry as a bear all the time, and the food passed undigested—irregular fever—luxuriant crops of urticated, itching petechiæ, with crimson areolas on the skin—tumid, tympanitic abdomen—prolapsus ani—pallid countenance—hyperæmia of the gums and all the linings of the mouth and fauces—the gums tumefied, in fact, and when pressed with the finger the returning blush was instantaneous—constant drivelling—emaciation not so remarkable as I would have expected from the mother's history of the case.

This child was treated with half-teaspoonful doses of the rhubarb mixture before spoken of, every four or six hours, given in good brandy toddy; lemonade, alternated with a weak solution of bicarbonate of soda, *ad libitum*, as the thirst demanded; and boiled milk and mashed potatoes, alternated with light bread as a dietary. Under this course and regimen,

the little fellow got on as if by magic, without any mercurials to "regulate the secretions," at all. The diarrhoea at once began to abate; the thirst to be diminished; the food to be digested; the strength restored: and in two weeks the child was well—the scorbutic redness of the gums and slaving were nearly removed. The child was ordered roasted apples, tomatoes, stewed cherries, currants, etc., etc., freely, every day, and every meal, and if diarrhoea ensued, the "red drops" to be given in brandy toddy, the amount of food diminished, and the soda and acid drinks resumed. There was no relapse; the gums became quite healthy-looking and natural, before any more teeth cut through, nor did I lance them in their swollen condition, as was my practice formerly. Now if any medical mind can see aught but Scurvy in the above assemblage of symptoms and physical signs, or if any one can deduce any other pathological condition from the effect of the remedies used, such mind has penetration beyond mine, and can make deductions, that are beyond my ken or ingenuity; and if any one living, or the shade of Rush departed, will point out to me, my error in diagnosis, if the case was not one of Cholera Infantum, I will acknowledge my stupidity, and enter myself a pupil under his clinical instruction.

CASE 4.—During the series of disastrous, blighting, sickly years, 1845-'46 and '47, before spoken of, it fell to my lot to attend a good many cases of Cholera Infantum, in the city of Chicago, where I was then practicing. I select from my case-book one only as a type, for it would be tiresome to report them all; and I select this, because it illustrates the comatose condition of the last stage of the affection, and the power of remedies over that condition, together with collateral evidences of the scorbutic nature of the malady, better and more clearly, perhaps, than any other one on my list. The case occurred in the hot summer of 1846. The child was in its third year, a little over two years old, a sprightly little girl, of native-born parents: but the mother was a victim of the Nursing Sore Mouth, and the father shiftless and slothful. They were poor, but the mother possessed what the father lacked, industry and good management, and so kept her five or six little ones neat and tidy; and really they

looked better kept than they were—they were better clothed than fed, I think, for I lay much to the charge of defective alimentation.

I will run over the evils that fell upon that family that year. The mother had the Nursing Sore Mouth, and the infant at the breast, some seven or eight months old, participated in the affection, and had a chronic foetid diarrhoea. It was habitual with the mother; the disease had occurred in each of her three last pregnancies. The father grew more and more lazy and slothful, till about November, when he parted from his family, went home to his mother, and took to his bed with Scurvy; had an abscess in the calf of his leg, that laid him up more than a year. The child next older than the infant is the case here related. The child next older, a little girl between four and five, was attacked in October with the hip disease, and lingered and died about a twelvemonth thereafter. The two older boys got on without any serious attack. The mother recovered under anti-scorbutic treatment, and the infant at the breast sucked itself well, by reason of the punch and lemonade the mother took.

In September, the subject of this was attacked with an exhausting diarrhoea, of two days standing, that had completely prostrated her, before I saw the case. Vomiting had supervened, and there was a strong tendency toward collapse and death, with all the concomitant symptoms seen in very urgent cases. Excessive thirst was present, and I ordered instantly a dozen of two ounce vials of fountain soda water, with three grains of bicarbonate of soda dissolved in each, and the vials kept cool with ice. Also, the rhubarb mixture before spoken of; and under the administration of these remedies, the vomiting ceased, but the diarrhoea was only partially controlled—at times, there was much tenesmus and straining, and blood was discharged at the close of the evacuations, showing that the lower portion of the intestinal canal was much implicated. The stools were intolerably foetid. Small powders of calomel and Dover's powder were prescribed, in addition to the above remedies, and the case ran on for a week without much change in the symptoms, the child taking but little nutriment, and having from half a

dozen to a dozen green, foetid, watery, bloody stools, daily—tenesmus characterizing the close of each evacuation. Great feebleness, emaciation, and tendency to death marked the case. The powders were discontinued, and the rhubarb mixture relied on, with the lemonade and punch drinks the mother was using, and which the child evinced a liking for, when it refused all other drinks. This treatment, together with starch and laudanum injections, restrained the dejections to three or four only a day, but somnolency ensued, which at length amounted to complete coma, from which the child could not be roused. The child continued in this way two or three days, taking nothing by the mouth, and lying with its eyes half closed, the balls rolled up, and the mouth kept moist only by swabbing. Injections now constituted the only treatment. The most nutritious soups—a piece of beef or chicken, and a potato, boiled together and the broth seasoned with a little salt, Cayenne pepper and lemon juice, were used. A half pint of this soup, with nearly a teaspoonful of the rhubarb mixture, constituted each injection. The bowels became less and less irritable under their administration, and on the third day after coma set in, the child awoke to consciousness and eagerly quaffed lemonade and punch from the spoon. Under an *ad libitum* use of punch, lemonade, soup, boiled milk and bread, and enough of the rhubarb mixture to quiet irritability, the child got well. The proof of the efficacy of anti-scorbutic treatment, together with the natural pantomime of the infant, and also the purplish-red appearance of the tissues of the mouth, gums, and prolapsed anus, satisfied me that Scorbutus was an element in the pathology of this case—Cholera Infantum aggravated, as I then supposed, by the scorbutic diathesis. Collateral proofs are seen in the mother's condition, the infant at the breast, the older girl with coxalgia ending in caries of the hip joint, and the father with a twelvemonth siege of swelled legs and abcess of the gastrocnemii muscles. I did not attend him, for after leaving his family he called another physician, but I saw him of curiosity on several occasions, and satisfied myself of the nature of his ailment.

These cases will suffice as types of Cholera Infantum, and

are selected because they forcibly illustrate its identity with Scorbutus. Were it necessary to the argument, I could adduce many more, and some, perhaps, even more hopeless in aspect, the subjects lying insensible for two or three days, with scores of flies busy on the glazed eyeballs, cured by a similar anti-scorbutic treatment, the remedies and nutrition administered per anum with the syringe. During a period of twenty-years, since 1835, I have considered and treated many cases of this character as Scorbutus, in infants. Knowing the Nursing Sore Mouth to be Land Scurvy in mothers, and seeing many infants participate in the disease with fetid diarrhoea and watery gripes, I have never been deceived since the year above mentioned, 1835, (a most remarkable year, in the Western States, for scarcity and sickness,) *where the mother has been affected*; yet I candidly confess that, where the mother of an infant laboring under Cholera Infantum has departed herself apparently well, or in pretty good health, I have been deceived, and have treated such cases empirically, as best I could, with powders of hydrag. cum creta, ipecacuanha, etc., on the anti-phlogistic and alterative plan; but from observation, I have become more consistent in my practice, of late years, and now ascribe all cases of Cholera Infantum to the same cause, defective alimentation or impaired nutrition; and instead of particularizing one set of cases, the infants of mothers affected with Nursing Sore Mouth, as Scurvy in infants, and other cases as Cholera Infantum, I generalize the whole genus as *Infantile Scorbutus*, and frequently institute no treatment whatever to the infants, except the rhubarb mixture, only put the mothers on a judicious course of tonics, egg-knogg, milk-punch, lemonade, and a generous diet of good meats, fresh vegetables and fruits, and the nurslings are sure to come right.

CORROBORATIVE VIEWS OF BRITISH PRACTITIONERS.

I will now, by quotations, illustrate the exhaustion, and the head symptoms—the scorbutic coma, arising from inanition, that is so generally seen in the last stage of *Cholera Infantum*.

"I believe," says Solly, in his able work on the human brain, page 281, "that there are two forms of hydrocephalus, the one anæmic, the other inflammatory, as well as two forms of ramollissement. Dr. Marshall Hall was one of the first to point out the resemblance which exists between a comatose condition arising from exhaustion, and that which is occasioned by the inflammation and effusion. The affection which Dr. Hall described, arises *principally in infants*, but is not confined to them. He calls it 'an hydrencephaloid affection of infants, arising from exhaustion.'

"Dr. Hall has observed this affection generally as a consequence of *continued diarrhœa*, produced either by *bad diet*, or long continued use of purgative medicines, or as a consequence of blood-letting. He divides the affection into two stages, 'the first that of *irritability*; the second that of *torpor*; in the former there appears to be a *feeble attempt at reaction*, in the latter the nervous powers appear to be more prostrate.' He thus describes the signs of the complaint: 'The infant becomes irritable, restless and *feverish*, the face flushed, the surface hot, and the *pulse frequent*; there is an undue sensitiveness of the nerves, and the little patient starts on being touched, or from any sudden noise; there are sighing, moaning during sleep, and screaming; the *bowels are flatulent and loose*, and the evacuations are mucous and disordered. If through an erroneous notion as to the nature of this affection, *nourishment and cordials be not given*; or, if the *diarrhœa* continue, either spontaneously or from the administration of medicine, the *exhaustion* which ensues is apt to lead to a very different train of symptoms. The *countenance becomes pale*, and the *cheeks cool or cold*; the *eyelids are half closed*, the *eyes are fixed*, unattracted by any object placed before them, the pupils unmoved on the approach of light; the breathing, from being quick, becomes irregular, and affected by sighs; the *voice becomes husky*; and there is sometimes a husky, teasing cough: eventually the strength of the little patient has been subdued, and the vascular system exhausted, by abstraction of blood.'

In the above paragraph, I have italicised some of the leading phenomena in Dr. Hall's "hydrencephaloid affection of in-

infants," making its striking conformity to Cholera Infantum or the scorbutic malady as manifested in infancy, according to my observations.

"Dr. Hall considers that this affection is to be distinguished from true hydrocephalus principally 'by observing the condition of the countenance, and by tracing the history and causes of the affection.'

"Dr. Abercrombie observes: 'In the last stages of diseases of exhaustion, patients frequently fall into a state resembling coma, a considerable time before death, and while the pulse can still be felt distinctly. I have many times seen children lie for a day or two in this kind of stupor, and recover under the use of wine and nourishment. It is often scarcely to be distinguished from the coma which accompanies diseases of the brain. It attacks them after some continuance of exhausting diseases, such as tedious or neglected diarrhoea, and the patients lie in a state of insensibility, the pupils dilated, the eyes open and insensible, the face pale and the pulse feeble. It may continue for a day or two, and terminate favorably, or it may prove fatal. This affection seems to correspond with the apoplexia ex inanitione of the older writers. It differs from syncope, by coming on gradually and in continuing a considerable time, perhaps a day or two; and it is not, like syncope, induced by sudden and temporary causes, but by causes of gradual exhaustion going on for a considerable time. It differs from mere exhaustion in the complete abolition of sense and motion while the pulse can be felt distinctly, and is in some cases of considerable strength. I have seen in adults the same affection, though perhaps it is more uncommon than in children.'

"In a letter which Dr. Hall received from Dr. Abercrombie, that gentleman observes:—'The state of infants which I have referred to is a state of pure coma, scarcely distinguishable at first sight from the perfect stupor of the very last stage of hydrocephalus, the child lying with the eyes open or half open, the pupils dilated, the face pale. It is difficult to describe distinctly the appearance, but it is one which conveys the expression of coma rather than sinking; and I remember the first time I met with the affection, the

circumstance which arrested my attention, and led me to suppose the disease was not hydrocephalus, the state somewhat differing from coma, was finding on further inquiry, that it came on after diarrhoea, and not with any symptoms indicating an affection of the head. The child recovered under the use of wine and nourishment.'

" 'The remedies for this affection,' says Dr. Hail, 'are such as will check this diarrhoea, and afterwards regulate the bowels, and restore and sustain the strength of the little patient—especially brandy and proper nourishment are to be given according to circumstances— * * * the young milk of a young and healthy nurse is the best remedy of all; in the absence of which, asses' milk may be tried, but certainly not with the same confident hope of benefit.' "

" Dr. Hall follows up this account with some excellent cases very illustrative of his views; he also quotes the following observations of Dr. Gooch, which, like all that this excellent practitioner ever penned, are worthy of attention.

CASE 5.—"A little girl about two years old, small of her age, very delicate, was taken ill of the symptoms which I have above described. She lay dozing, languid, with a cold skin, and a pulse rather weak, but not much quicker than natural. She had no disposition to take nourishment. Her sister having died only a week before of an illness which began exactly in the same way, and some doubts having been entertained by the medical attendant of the propriety of the treatment, leeches were withheld, but the child not being better at the end of two days, the parents, naturally anxious about their only surviving child, consulted another practitioner. The case was immediately decided to be one of cerebral congestion, and three leeches were ordered to be applied to the head.

" "As the nurse was going to apply them, and during the absence of the medical attendants, a friend called in who had been educated to physic, and who had great influence with the family; he saw the child, said that the doctors were not sufficiently active, and advised the number of leeches to be doubled. Six therefore were applied; they bled copiously: but when the medical attendants assembled in the evening,

they found the aspect of the case totally altered, and that for the worse; the child was deadly pale, it had scarcely any pulse, its skin was cold, the pupils were dilated and motionless when light was allowed to fall upon them, and when a watch was held to its eyes it seemed not to see. Who can doubt that here the insensibility of the retina depended on the deficiency of its circulation.

'The next day she had vomited her food several times, it was therefore directed that she should take no other nutriment than a dessert-spoonful of asses' milk every hour, and this was strictly obeyed and continued for several days. The child wasted, her features grew sharp, and every now and then she looked fretful, and uttered a faint squeaking cry; the eyeballs became sunk in the sockets, like those of a corpse that had been dead a month; the skin continued cool, and often cold, and the pulse weak, tremulous, and sometimes scarcely to be felt. Under this regimen and in this way she continued to go on for several days. At times she revived a little, so as to induce those who prescribed this treatment to believe confidently that she would recover; and she clearly regained her sight, for if a watch was held up to her she would follow it with her eyes. She lived longer than I expected—a full week, and then died with the symptoms of exhaustion, not those of oppressed brain. The head was opened by a surgeon accustomed to anatomical examinations, and nothing was found but a little more serum than is usual in the ventricles.'

"If the reader has perused the foregoing case attentively, and has reflected on it, he will of course draw his own conclusions. I can draw no other than these; that the heaviness of head and drowsiness which were attributed to congestion in the brain, really depended on a deficiency of nervous energy; that the bleeding and scanty diet aggravated this state, and caused the death of the child; also, that the state of the eye which so speedily followed the loss of blood, and which resembled that occasioned by effusion, did, in reality, depend on deficiency in the circulation of the brain, a fact of considerable curiosity and importance.

"I will now relate a case similar in the symptoms but very different in the treatment and results.

CASE 6.—"I was going out of town one afternoon last summer, when a gentleman drove up to my door in a coach, and entreated me to go and see his child, which he said had something the matter with its head, and that the medical gentleman of the family was in the house, just going to apply leeches. I went with him immediately; and when I entered the nursery I found a child ten months old, lying on its nurse's lap, exactly in the state which I have already described—the same unwillingness to hold its head up, the same drowsiness, languor, absence of heat, and all symptoms of fever. The child was not small of its age, and had not been weak, but it had been weaned about two months, since which it had never thriven. The leeches had not been put on. I took the medical gentleman into another room, related to him the foregoing case, and several similar to it, which had been treated in the same way. Then I related to him a similar case which I had seen in the neighboring square, which had been treated with ammonia in decoction of bark and good diet, which had recovered; not slowly, so as to make it doubtful whether the treatment was the cause of the recovery, but so speedily that at the third visit I took my leave. He consented to postpone the leeches, and to pursue the plan which I recommended. We directed the gruel diet to be left off, and no other to be given than asses' milk, of which the child was to take at least a pint and a-half, and at most a quart, in the twenty-four hours. Its medicine was ten minims of the aromatic spirit of ammonia in a small draught, every four hours. When we met, the next day, the appearance of the child proved that our measures had been right; the nurse was walking about the nursery with it upright in her arms. It looked happy and laughing; the next day it was so well that I took my leave, merely directing the ammonia to be given at longer intervals and thus gradually withdrawn; the asses' milk to be continued, which kept the bowels sufficiently open, without aperient medicine.

"So inveterate is the disposition to attribute drowsiness in children to congestion of the brain, and to treat it so, that I

have seen an infant four months old, half dead from the diarrhoea produced by artificial food, and capable of being saved only by cordials, aromatics, and a breast of milk; but because it lay dozing on its nurse's lap, two leeches had been put on its temples, and this by a practitioner of more than average sense and knowledge. I took off the leeches, stopped the bleeding of the bites, and attempted nothing but to restrain the diarrhoea and get in plenty of nature's nutriment, and as I succeeded in this, the drowsiness went off and the child recovered. If it could have reasoned and spoken, it would have told this practitioner how wrong he was; any one, who from long defect in the organs of nutrition is reduced so that he has neither flesh on his body, nor blood in his veins, well knows what it is to lay down his head and doze away half the day, without any congestion or inflammation of the brain.

"This error, although I have specified it only in a particular complaint of children, may be observed in our notions and treatment of other diseases, and at other periods of life. If a woman has a profuse hemorrhage, after delivery, she will probably have a distressing headache, with throbbing in the head, noises in the ears, a colorless complexion, and a quick, weak, often thrilling pulse, all which symptoms are greatly increased by any exertion. I have seen this state treated in various ways, by small opiates, gentle aperients, and unstimulating nourishment, with no relief. I have seen blood taken away from the head, and it has afforded relief for a few hours, but then the headache, throbbing and noises have returned worse than ever; the truth is, that this is the acute state of what in a minor degree and more chronic form, occurs in chlorosis, by which I mean pale-faced amenorrhoea, whether at puberty or in after life. It may be called acute chlorosis, and like that disease is best cured by steel, given at first in small doses, gradually increased, merely obviating constipation by aloetic aperients.

Mr. Solly further says:—"My esteemed friend and colleague, Dr. Risdon Bennett, in his admirable work on hydrocephalus, advocates the doctrine that this disease assumes very distinct forms, and that though it undoubtedly does arise in

some instances from inflammation, in others it arises from an opposite condition. He says—'There can be no difficulty in admitting that the physical alterations of softening and serous effusion may be induced by functional and organic changes, very different from inflammation or any allied morbid action.' He considers that in by far the largest class of cases, the disease is essentially the *result of Scrofulous [scorbutic] action*, and may or may not be attended by the signs of inflammation."

REMARKS.—I have omitted to place in italics any further phenomena of the above cases, because the *whole* observations and illustrations are emphatically in point. The views and cases are altogether apropos. They run in the same orbit—are of the same character, stripe, and type, as thousands of cases in the United States yclept Cholera Infantum, that are treated with leeches to the temples, ice to the head, mercurial alterative powders in broken doses internally, blisters behind the ears, innutritious arrowroot and gum Arabic diet, etc.; but they soon pass from the hands of the doctor into those of the undertaker.

Call it, reader, what you please, either as Mr. Solly does, *anæmic coma*, or as Dr. Marshall Hall does, an *hydrencephaloid affection*, or as Dr. Abercrombie inclines with the authority of the older writers, *apoplexia ex inanitione*, or by the cognomen it bears in the United States, *Cholera Infantum*—I hesitate not, after many years' observation and the proofs of treatment in a goodly number of cases, to pronounce it the more common mode in which *scorbutus* manifests itself in infants.

What one learns by studying the symptoms, signs, and proofs of treatment in the school of experience, little by little, during his wearing and anxious professional devotions at the bed-side, through many long years of practice, it were idle to gainsay, discredit, dispute, or lightly conclude that he may be mistaken in his knowledge. When I say, then, that twenty years ago, cases of this kind began to impress me with intense anxiety, not only as a physician but as a father, and that situated in practice where the *land scurvy* in the form of that anomalous affection, called in the United States the

Nursing Sore Mouth, or *Puerperal Anæmia*, was epidemic during certain years, and infants at the breast were often observed participating in it, with all the symptoms of *Cholera Infantum*, this running into *Anæmic Coma*, often into convulsions, and so into the hands of the undertaker, I was forced into this generalization of the matter; and twenty years observation has but added new proofs, strengthened and confirmed, and finally settled this great truth in my mind. I could draw up and detail any reasonable number of cases beyond what I have, but have preferred to offer Mr. Solly's views, with the respectable illustrations, parallel views, and cases of the distinguished authors he quotes, in place of my own, but running precisely parallel with mine, except that we differ a little as to the name by which the affection should be called.

I must be permitted to remark here, that calling this starved pathological condition the one thing or another as those respectable London practitioners have done, as *anæmic coma*, an *hydrencephaloid affection*, or *hydrocephalus from softening* of the brain, answers no profitable end, scarcely, in indicating what should be done, or in applying the knowledge of former medical experience to usefulness. Yes, calling it *anæmic coma* does advance truth and stave off leeching: and calling it *apoplexia ex inanitione* throws more light on the subject, and begins to indicate by a name what the cause is, and what course to pursue to overcome the difficulty; but still, this does not bring down the treasures of professional knowledge laid up in the overlooked name I give it, and hold that it legitimately deserves, and no other, viz., *scorbutus*; which tells the whole story, and indicates the proper treatment with the same certainty in results as quinine produces in ague. It not only tells the tale as to the sick infant, but as to the mother, aye, the whole family; for often quite a plurality of the family, perhaps all, or all but one of the little innocents of certain families, pass away from the hands of groping physic into the grave, during the same season—the same scorbutic year.

I have known as many as three children of a family to fall victims of this scourge in several instances—to be swept off

to the grave the same season—the hopes of parents crushed, their spirits broken, when *all* on which their affections centered were thus rapidly snatched away from their embrace. This was particularly the case in 1835, in 1846 and 1847, and in 1849, the constitution of which years I have before considered, showing, past all doubt, that the inlaid scorbutic diathesis in those families was the difficulty—but this essay is now already too long.

In conclusion—I am well aware that new truths involving issues of the importance these herein offered do, are apt to be very cautiously received, and make but slow progress, opposed by all errors; but, though their progress be slow, they finally prevail, independently of authority.

APPENDIX.

December, 1855.—Since writing the foregoing Essay in April last, opportunities have presented, during the past summer and autumn, for still farther observations in the treatment of Cholera Infantum on the anti-scorbutic plan, with lemon juice, punch, the native acids of fruits, and a nutritious diet; and in not a single instance, out of some twelve well formed, well marked, strongly characterized cases, has the treatment failed; to say nothing of its success in the frequent minor manifestations of the complaint, met with. In one family, four of the children were attacked, and the mother had the Nursing Sore Mouth. The infant at the breast, six months old, was a fat, plump subject, and seemed the picture of health, when the characteristic foetid, watery diarrhoea set in, about mid-summer; another child, of four years of age, was attacked, another of thirteen, and the fourth was a lad turned of sixteen. One vial of four ounces of the rhubarb mixture, together with all the acids that they could be induced to make use of, set them right and kept them right. The oldest subject was the most violently attacked, and his case would doubtless have been pronounced Asiatic Cholera, had it been epidemic at the time. He had diarrhoea for four days, when vomiting supervened and held for the best part of two days, considerable fever or reaction being present at evening, and a very foul tongue presenting. A surfeit of unripe cherries, some five or six days before I saw him, was said to be the exciting cause of the diarrhoea. He was attacked about the last of June, and I prescribed for him on the 4th of July. His case was the first. Teaspoonful doses of the astringent rhubarb and catechu mixture, in toddy, soon arrested the vomiting and purging, together with punch and lemonade, the juice of stewed cherries, vinegarade, etc., under the use of which his fever entirely abated, and his appetite returned. The dietary of this family, all the winter and spring, had been mostly destitute of succulent vegetables. The objective signs of Scurvy were present in the mouths of all the members of the family. In the autumn, the father, mother, and the only child that escaped a Cholera Infantum attack in the summer, had an attack of the ague and fever. These are suggestive facts.

The Scurvy was notoriously inlaid and manifest all over the western country last spring, and the past summer and autumn have revealed a more wide spread epidemic of the ague and fever character than has been seen probably since 1835, after the great blight in vegetation and scarcity of succulent vegetable food of the preceding year. These facts point to the

dietary, vicious alimentation, as the cause of fever epidemics — vicious alimentation *versus* malaria.

I suggested in the Appendix to my essay on Epidemic Cholera, that the prevalence of the Yellow Fever during the past summer, was suggestive that it might possibly be a scorbutic fever. The facts point that way; and wherever facts lead, the science of medicine must follow. Has any one ever suggested before that Yellow Fever might be a scorbutic fever? Its first appearance was in 1730, in Guayaquil, where it was called *vomito negro*, if I have rightly posted myself on the subject, and it followed a blight in vegetation—disastrous years. It prevailed again in 1740 to '44, during which years a world-wide blight in vegetation occurred—a series of disastrous years following in succession. Lord Anson made his memorable voyage round the world, during those years, and lost the most of his crews by Scurvy. Bisset made his observations in the West Indies, during those years, the basis of his admirable contribution to the literature of Scurvy; and both speak of the tropical fevers of those times as *Scurvies*, in the plural number, inlaid by defective alimentation and developed by tropical heat. This makes it of quite as domestic origin as our learned La Roache would have it, or any one need desire. Bisset says the course of these *hot Scurvies* is swift to death. Is not this the case with Yellow Fever? Whoever will consult the history of the visitations of this American plague, Yellow Fever, will find that it holds an intimate relation to disastrous years and blights in vegetation; that its ravages in Philadelphia in 1793, and other cities of the United States, thence to 1796 or '97, followed blights, dearth and scarcity of succulent food; that the epidemic at Norfolk and Portsmouth, the past summer, obeyed the same law; and it is only necessary to point to New Orleans, the stronghold of Yellow Fever, the great metropolis of the planting States, where sugar, cotton, hemp, rice, corn, tobacco, are the great staples, instead of potatoes, turnips, pumpkins, apples and cider, to wake at least the medical mind to a more promising source of its etiology than is to be found in the sandy deposits of its river levee.

These however are but suggestions. I have not had opportunity for making observations in yellow fever epidemics. I have not tried the therapeutic effects of lemon juice and other acids; but had I the opportunity I would saturate my patients with the juice of oranges and lemons, which Bisset found his only reliance in the hot scurvies of the West Indies, and which seem to me to be identical with the yellow fevers of the Southern States. I would try to bleach the yellow Scorbutic hue out of some few, anyhow, with lemon juice, and drive away the rheumatic bone-aches with it, since it is proved to be a sovereign remedy in Rheumatism, and this was so common a form of scurvy in earlier days. But more especially would I try its prophylactic power, aware of the great danger of sudden death in some manner, form or fashion, under even slight manifestations of Scorbutus. In Southern regions, if people do not live on succulent food and imbibe acid drinks all the time, the soluble salts of the blood pass off so rapidly by perspiration that nature will rebel. But I am elaborating a suggestion that is only incidental.

To return to Cholera and Cholera Infantum. I will observe that other

practitioners than myself have tried the acid treatment during the past season, at my suggestion, and some have reported very favorably, as the following note establishes. I could extend this Appendix by publishing other similar communications, but they really seem unnecessary, and as the promised limits of this essay are filled they are therefore withheld.

November 1, 1855.

M. L. KNAPP, M. D.—Dear Sir: Your paper on Cholera lately came into my hands. Your theory with treatment seemed at least plausible enough to warrant a trial.

Sep. 20, 2 o'clock, P. M., was called to see Mr. R., laboring man aged about forty years. Learned from the attendants the following history of the case. Was seized with severe watery diarrhoea accompanied with vomiting, at two o'clock, A. M. Was visited by Dr. Green who prescribed calomel, camphor, and opium, to be given every two hours. Dr. Green having other engagements of imperative nature, left at six, A. M., giving urgent instructions to call other assistance.

Present symptoms—countenance anxious, eyes sunken, voice weak and husky, tongue slightly furred, gums very red, skin clammy and torpid, extremities cold, pulse altogether imperceptible, lower extremities constantly and severely cramped, frequent vomiting, diarrhoea ceased at twelve o'clock, M. Patient very restless, constantly throwing himself about on the bed.

I immediately ordered of Citric acid a drachm, Sulph. quinine five grs., Morph. Sulph. one gr., Spt. vin. Gall. four ounces, sacch. alb. one oz., water two pints, mix. A wine-glassful every 20 minutes. Nourish patient with vegetable soups.

At four o'clock, P. M. there was an evident improvement. Skin warmer, voice stronger, vomiting less frequent, pulse just perceptible at the wrist. Visited patient again at ten o'clock, P. M., still improving. Continue treatment. September 21st, at eight o'clock, A. M. visited patient; symptoms of previous day absent; pulse regular but small and weak, patient very drowsy; withdraw Morph. from prescription. Four o'clock, P. M.; patient still improving; give mixture at longer intervals, and take Hydr. Sub. Muria. gr. $\frac{1}{2}$ every three hours until bowels are moved.

From this time on, the patient gradually recovered his strength. Some two or three days afterwards the gums bled quite freely, and the patient had much difficulty in swallowing; complained that, the soreness of the mouth extended down the oesophagus of the stomach. There was also considerable bleeding from the anus, which was surrounded by a red raw sore. I should have said above, that until the patient was almost entirely recovered, the gums remained of a fiery red color. The patient's diet during the summer was mainly salt pork.

How much the favorable result of this case is owing to the calomel administered or to your treatment I will not presume to say. I would not think myself justified in adopting a new theory and new practice, in any disease, from its success in a single case, far less justified in rejecting a theory the application of which has been seemingly successful, without giving it a further and more thorough trial.

Yours, etc.,

17th Ward, Cincinnati.

E. H. FERRIS, M. D.

P. S.—In the treatment of Cholera Infantum, during the last summer, I have in almost every case used only lemonade, brandy, and quinine, and have been well satisfied with the results of that treatment. E. H. F.

INQUIRY
INTO THE NATURE
OF THE
NURSING SORE MOUTH AFFECTION.
BY M. L. KNAPP, M. D.

Entered according to the Act of Congress, in the year 1856, by
M. L. KNAPP, M. D.
In the Clerk's Office of the District Court of the United States in and for the
Eastern District of Pennsylvania.

AN
INQUIRY INTO THE NATURE
OF THE
NURSING SORE MOUTH AFFECTION.

CHAPTER I.

LITERATURE OF THE NURSING SORE MOUTH.

THE term Nursing Sore Mouth is so well understood to mean a peculiar form of disease to which suckling women are subject, that its adoption, though it be popular rather than professional, cannot lead to any mistake. There may be some practitioners who have never encountered this disease at the bedside, and possibly those who have never heard of it; yet there are numerous physicians who have met with it and found it a very serious and obstinate affection. The silence in the main of standard or systematic authors on the subject; the omission in the arrangements of the best nosologists of any affection of the mouth peculiar to lying-in women characterized by the phenomena that are manifested in this complaint; and the testimony of the Journals, nevertheless, that such an affection does exist, is often met with, and is greatly on the increase in some localities; render it, most decidedly, a proper subject of inquiry, particularly in the absence of any clear or satisfactory views from those under whose observation it has more frequently fallen, as to its nature, pathology, and rational method of cure. To deny that a peculiar, lingering form of disease, often of very grave severity, characterized

by anæmia, debility, and other phenomena of which soreness of the mouth constitutes a prominent local symptom, now and then attacks women in the state of lactation, and persists, sometimes, in spite of all the remedial measures brought to bear upon the case, finally either proving fatal or terminating in a slow and gradual recovery incident to circumstances, as the removal of the infant from the breast, change of season, etc., rather than the administration of medicines, would be to shut our eyes to facts and experience. The history of hundreds of such cases is annually unwritten, willingly oblivionized among the unrecorded transactions of groping practice: and yet these cases are not wholly lost, for they reach us from the nursery as the reminiscences of many a delicate mother's past sufferings, and forebodings of their re-occurrence, constituting some of the oral literature of this dreaded affection. There are few practitioners, we opine, who have altogether escaped these popular traditions of the Nursing Sore Mouth affection.

The recorded literature of this disease is made up of the brief articles on this subject that have from time to time appeared in the medical Journals. Some of these are mere notices that such an affection has been met with, accompanied with the recommendation of a favorite remedy, perhaps, while others contain well-marked and well-drawn-up cases of the disease. We propose as a starting point in our Inquiry to canvass what is known and what has been published on the subject, so far as we may be able to reach the files of the Journals. It is probable an article may here and there be overlooked, but sufficient testimony will appear to establish very clearly the grave character of the malady; that it is nowhere understood, every where treated empirically; and that it has hitherto failed to receive such careful investigation at the hands of any member of the profession as to settle the question of its pathology and treatment. Prior to glancing into the Journals, however, we will offer the original views of our correspondents, elicited by the following circular, two hundred and fifty copies of which were distributed to leading practitioners

of the United States. We will not marvel that only three medical gentlemen have responded. These three contributions on the subject, however, are valuable. They establish the grave character of the malady, the want of any exact knowledge of its true character, and the further interesting facts that it has puzzled, perplexed and engaged the attention of the profession in sundry parts, and that it is looked upon as a subject of sufficient general interest to demand a searching inquiry. Our acknowledgments are hereby tendered to the courteous gentleman who kindly responded to the call.

CORRESPONDENCE.

Circular.—Cincinnati, Dec. 22, 1853.—DEAR SIR: My apology for trespassing on your time and attention is the following, to wit: I am instituting some inquiries into the nature and history of that anomalous affection known in the United States by the popular designation of "*Nursing Sore Mouth.*" Attention has been briefly called to this disease through some of the Journals as a form of "*puerperal anemia.*"

Having encountered the disease in localities widely apart, and having conversed with physicians in different States who had met with it frequently; I am led to think that it occurs more or less in all the States and British Provinces, but more frequently by far in some localities than others. Although it is believed to occur thus extensively, and so frequently during some years that it may be said to be a not uncommon form of disease, still little is understood of it except empirically, and it is consequently treated with very variable results, the majority of well-marked cases proving obstinate, running a course of some months, and in many instances yielding only with a snail's pace, after the removal of the puny infant from the breast, which dernier resort seems to be a *sine qua non* in the recovery of inveterate cases.

Its literature, I think, is limited to a few fragmentary notices, that have appeared in the Journals within the last few years: nothing is said of this obstinate and sometimes fatal form of disease in our elaborate treatises on Practice and Diseases of Women.

Presuming that this anomalous and nondescript form of disease has come under your notice, and that you will feel

an interest in contributing to its elucidation, I respectfully request you to call to mind your cases of "nursing sore mouth," and the impressions they have left on your mind, and, at your earliest convenience, to draw up and forward to me by mail your observations and experience on the subject. My object is to arrive at just conclusions by means of more extended data than my own observations afford. This appears to me to be a legitimate mode of investigating the subject, and the only practicable method perhaps, for the disease seems to shun the lying-in wards of hospitals (or we should have heard something of it), and to occur wholly in private practice.

Should I be so fortunate as to arrive at any practical deductions deemed of general interest to the profession, and worthy of publication, the condensed views or points of practical importance (and, if not too copious, the views in full) of my correspondents will also appear, that each may receive the award of merit due to his own observations. Allow me to add in this connection that it will give me pleasure to reciprocate the favor at any time you may call on me for a like civility.

Having made known my object and wishes in a general way, I now take leave to call your attention to a few points in detail I wish your answer to cover, which, for your more convenient reference, I have numbered.

1. Topography of your region of country, and how long settled; agriculture and products; state of horticulture and orcharding; general character of disease?

2. Number of years in practice; number of cases of nursing sore mouth met with; history, symptoms, treatment, duration, result of one or two cases as types?

3. If death has resulted in any case, the mode or manner in which it took place?

4. The effect of the disease in the mother on the child; if the infant died, or was removed from the breast, the effect of a suppression of lactation on the progress of the case?

5. Whether cases have occurred more frequently in some years than others; if so, the character or constitution of those years as to temperature, snow, rains, frosts; whether the

crops and fruits were blighted or short; season of its development?

6. Whether attacks have occurred oftener after the first confinement than in subsequent ones?

7. Whether attacks have occurred oftener after very severe labors, flooding, or other prostrating accidents of delivery?

8. Whether you have known an attack follow abortion, or parturition where the infant was still-born, or was removed from the breast and lactation suppressed?

9. Whether the disease has ever to your knowledge made its incursion before delivery; and if so, the effect of parturition on the case?

10. Whether, within the range of your observation, other females than those in a pregnant, puerperal, or suckling state, have suffered an attack of this form of anæmia; and if so, whether concurrently in the same family where a nursing female was laboring under it?

11. Whether, according to your observation, it be a disease peculiar to women; or have you met with the same morbid diathesis and assemblage of symptoms in males, during years of the greater prevalence of this disease?

12. Whether you have noticed in seasons of the more frequent occurrence of this affection, a prevalent, morbid diathesis that seemed to aggravate and render more intractable the common forms of disease?

This covers all the points I wish to have categorically responded to; but any views of your own—any facts or deductions from your practical experience and observation, throwing light on the etiology, pathology, or treatment of this affection, will be thankfully received.

Dr. Ellsworth's Reply.—*Hartford, Jan. 21, 1854.*—DEAR SIR: Many duties have hitherto prevented an answer to your favor of the 22d December. Your letter was handed to a physician having more extensive practice than myself in the department of midwifery, but as he insisted on my writing, you shall have all the information I possess: the questions shall be answered briefly, at least as many of them as it is in my power to answer.

1. Hartford is partly built on the alluvial of the Connecticut River valley, but the county is mainly primitive. The farms are rich, highly cultivated, and possess good depth of soil. Diseases in our valley generally assume a typhoid type, and do not bear the lancet as well as in higher portions of the State, and my impression is that V. S. is not as well borne as some years since.

2. My present experience extends back only fifteen years. The disease under consideration is not of very frequent occurrence, though common enough to excite earnest desire for its amelioration. The treatment, symptoms, etc., have been discussed by our City Medical Society.

3. As a general thing patients have recovered, though weaning has occasionally been necessary to effect this. I have known no case of death from the disease alone.

9. I had a very severe case commencing nine weeks prior to labor; the patient had nearly died from the disease with a previous child, in which case also the complaint made its appearance prior to delivery. She recovered, and I think without removing the child.

The treatment is simple, consisting of good support by way of food, bark with lime-water, carb. ferri, carb. sodæ, and particularly porter. Almost every thing tonic is useful, but especially the articles mentioned.

The minutes of our Society present but little worth mentioning in addition, except a statement made by Dr. Miner, that he knew a severe epidemic of it in Berkshire Co., a mountainous region in Massachusetts, in 1832, and another at Middletown, in Connecticut, in 1836. Dr. Sumner also stated that he found persons subject to this complaint more disposed to phthisis. He had known the disease occur as early as the fifth month of pregnancy. Local treatment does not appear to be particularly serviceable. Some of the questions remain unanswered, because I must either give a negative answer or one of no particular service to you. Hoping what is recorded may be useful to you, I remain,
yours, truly,
P. W. ELLSWORTH.

Remarks.—Dr. Ellsworth's contribution establishes the fact

very clearly that the disease in question is not confined to the period of lactation, for he observed its occurrence twice in the same female, and on both occasions it made its incursion before delivery. Dr. Sumner also had observed it as early as the fifth month of pregnancy. It is not, therefore, *caused* by the drain of lactation, as has been supposed. Dr. Ashwell, in considering the complaints developed by undue lactation, makes no mention of any malady similar to the nursing sore mouth affection. We thus establish one point in our investigation, viz.: that the disease is not an affection peculiar to *nursing* women.

Again: another fact of much importance is derived from Dr. Miner's statement in the discussion of the subject before the Hartford Medical Society, viz.: "that he knew a severe epidemic of it in Berkshire Co., Mass., in 1832, (the year of the cholera,) and another at Middletown, Ct., in 1836." The fact established is, the greater frequency of the disease in certain years, amounting to an epidemic in some localities. This accords precisely with our own observations; and if the constitution of those years, as to temperature, snow, rains, frosts, state of the crops and fruits had been given, as called for by our circular, very important deductions, we opine, might be drawn from the premises. In the absence of said particulars we must depend on our own knowledge in the matter.

The winter of 1831-32, was the coldest winter, according to our recollection, we have ever experienced. The harbor of Baltimore, where we then resided, was closed by ice about four months—the Chesapeake Bay was almost frozen across at Annapolis, a circumstance which was then stated in the public prints to have occurred but *once* since the settlement of Lord Baltimore's colony—the harbor of New York it was conjectured might be closed by the ice that winter—we participated in a sleigh-ride, the thermometer at zero, in the month of April, 1832, and the snow well-nigh a foot deep. The Asiatic cholera swept over the United States in the summer of 1832, and what influence the very rigorous winter and retarded spring exerted upon the human constitution in the United States toward rendering it liable to attack, has

never been inquired into. That the Constitution of the seasons and state of the crops and fruits have very great influence over epidemics there can be no manner of doubt; and while our observations tally with those of Dr. Miner as to the occasional epidemic prevalence of nursing sore mouth, we can as emphatically declare that its epidemic manifestations occur *invariably* after cold winters and retarded springs, accompanied with a scarcity of vegetable supplies. The coinciding fact, therefore, of nursing sore mouth occurring in epidemic form, in Berkshire Co., Mass., a cold mountainous region, in 1832, after an uncommonly rigorous winter and a cold retarded spring, is another point made in our inquiry.

As to the epidemic of 1836 at Middletown, Ct., this is not quite so clear. We incline to the opinion that Dr. Miner is mistaken in the date, and that it occurred in 1835, the year of its epidemic occurrence in the West, complicated with other epidemics, as will more fully appear in our chapter on the topography of Illinois, where we discuss the meteoric phenomena and constitution of these epidemic years.

In regard to the treatment given by Dr. Ellsworth, we wish particular note to be taken of the good support by way of food, porter as a drink, (full of carbonic acid,) and the preparations of *soda, lime, iron*, etc., recommended. There is application yet to be made of the principle before we have done, illustrative of the why and wherefore of the efficacy of these acids, salts, alkalies and tonics, combined with wholesome nutrition.

Dr. Hall's Reply.—*Glasgow, Jan. 26, 1854.*—DEAR SIR: Your circular letter bearing date Dec. 22, has been in my possession several weeks, and would have received an earlier response but for the presence of other engagements. Upon its reception I bestowed upon it a careful perusal, and cannot refrain from expressing a hearty commendation of the enterprise you have embarked in, and, so far as any coöperation upon my part may conduce to the results to which your investigations are directed, it is most cheerfully granted. In responding to your inquiries, I have to mention two circumstances which I very much regret should exist—in the first place, the

instances of this anomalous affection have been limited; but more especially do I regret that my observations in reference to these cases have been without that systematic accuracy, in the absence of which, facts in a great degree become valueless as materials for etiological, pathological, or therapeutical generalization.

During the last three years, which embraces the period of my acquaintance with this, as a distinctive type of disease, I have, in some manner, been connected with the treatment of five or six well-marked instances of "puerperal anæmia," besides several cases of minor importance, in reference to which I have been casually consulted. The gravest case which has presented itself to my observation, occurred in the person of a lady who was a resident of Logan Co., in the southern part of this State, and who was at the time I saw her (Aug., 1853,) on a visit to her friends in this neighborhood. This was a very characteristic case. The subject, æt. about thirty-eight years, is habitually anæmic, strikingly deficient in the nutritive function, so much so as to present a very pallid, exhausted appearance, and the buccal affection has regularly recurred, in the early period of lactation, since the birth of her second child—having had six, I believe. The infant then at the breast was about four months old, and from the history of the case elicited from the attending physician and her friends, her general debility increased, and her health continuously declined to this period, when the symptoms had become extremely aggravated. She had been confined to her bed and utterly helpless for fourteen or fifteen days when I first saw her—entire buccal membrane covered with aphthous inflammation, with numerous patches of small ulcers, several large ulcers occupying the edges and inferior surface of the tongue, and some isolated spots of ulceration on the inner surface of the lips, profuse salivation, (not mercurial,) much complaint of vitiated taste with anorexia, pulse 125, and very feeble, with a very low grade of febrile reaction of a regularly remitting type, muscular and nervous exhaustion complete, with extreme feebleness of circulation. So distinctly remitting was the accompanying fever, in this case, that it seemed so urgently to

demand an anti-periodic, that such a measure was resorted to and met the indication very happily.

This imperfectly-descriptive history is equally applicable to two others, the most malignant cases of the disease, with the one described, of which I have any knowledge; and in both these instances the subjects were likewise non-residents of this (Barren) county. One, a young married lady of Gallatin, in Tennessee, came near sinking under a protracted attack, the onset of which dated with the establishment of lactation after the birth of her second child. The other subject of this vitiating infirmity is a resident of Louisville, and, as I have been informed by her sister, who resides in this place, like the first-named case, it has become so much a constitutional vice as to be habitual with each returning period of lactation. The two females last adverted to seem in a good degree to regain and retain their health and vigor throughout the menstrual cycle, but the health of the first is hopelessly dilapidated, though she is measurably free from the essential symptoms of "nursing sore mouth."

The remaining several instances of the affection, which have been presented to my notice, put on a milder form, yet sufficiently serious to become objects of regular medical attention; presenting in a marked manner the conditions of an impoverished circulation, a depraved state of the nutritive and assimilative functions, with more specific local lesions stamped with a less or greater degree of distinctness, in accordance with the mildness or intensity of the attack.

As to therapeutical relations, I conceive that these are, to some extent at least, deducible from the manifest pathological features of the disease. I can but regard the diseased condition as constitutional, consisting mainly of a lesion of nutrition. It may become a question as to where the first link in the chain of morbid actions is to be riveted; but as for my own part, I have learned to regard a vitiated action of the organs of primary digestion as a primitive feature in this pathological state, and other symptoms and conditions as more secondary. The circulating medium certainly becomes greatly depreciated in normal elements, and to replace these constitutes a leading indication of treatment. How to accomplish

this, or the principles upon which it is to be done, involves details and considerations not consistent with my present purpose to discuss. So far as concerns the lesion of the mucous lining of the mouth, I can regard this only or mainly as a local manifestation of a more general diseased disposition, and this consideration would lead us to attach but a secondary value to topical measures of treatment; this my experience fully verifies. I have derived manifest advantage from astringent washes, or even caustic solutions applied to the diseased membrane; but they are to be relied on as less important auxiliaries of a judiciously devised constitutional plan. One drachm of sulphite of soda to the ounce of water forms a valuable wash. The blood dyscrasia, which constitutes the peculiar diathesis of this affection, must be corrected by a set of measures addressed to the nutritive and assimilative functions—a properly regulated but nutritious diet, exercise adapted to the strength of the patient, and attention to every means of promoting and maintaining the healthful functions of the skin. I have found the most satisfactory results to attend the persevering administration of quinine, chalybeates, the mineral acids, and cod-liver oil, with attention to the state of the secretions.

To speak with more especial reference as to the etiology of puerperal anæmia, I am inclined to discard the influence of climate and locality in the causation of the disease, further than the agency they may exercise in lowering the tone of nutritive life. Thus they may become predisponent agencies; but unless there be an inherent defect of constitution, I should be disinclined to attach much consideration to their influence alone. One of the strongest predisposing causes is, a naturally delicate and enfeebled constitution, and whatever depressing influences may operate to foster and still further deprave this natural disposition to the establishment of the anæmic diathesis: nothing further is wanting to give to the disease its distinctive and characteristic development, but the withdrawal, from the already scanty maternal supplies, of such nutritive elements as answer the demands of gestation and lactation. I will suggest a circumstance in this connection: I have observed in a majority of cases falling under my notice, that the

child is very prone to muguet during the existence of the other disease in the mother. How far may the vitiated materials of nutrition derived from the mother contribute to the development of muguet in the child?

I will now bring to a close this communication, already extended greatly beyond the contemplated limits when I sat down to write. It will afford me decided satisfaction, at all times, to reciprocate favors of this character, and as a beginning I would gladly have pointed out to me a more successful plan of treating malignant epidemic scarlatina, than experience and reading have, as yet, enabled me to arrive at. I am, most respectfully,
yours, etc.,
J. P. HALL.

Remarks.—The points of particular interest in Dr. Hall's paper are, the kind of constitution most liable to this affection, viz.: feeble, delicate, breeding, and suckling women—its constitutional rather than local seat—its pathology in his judgment being a lesion of nutrition—its sporadic appearance in Kentucky and Tennessee—its very marked, grave, and chronic character—its low grade of remittent febrile exacerbations—the ulcerated condition of the mouth and tongue, attended with profuse salivation not mercurial—the impoverished state of the blood the cause of the disease, and to supply the circulation with normal elements the chief indication in the treatment—and the observed fact that the infants at the breast, in the majority of cases, are also affected with sore mouth. In fine, this contribution comes to us with a freshness from the bed-side of observation in this disease that is exceedingly forcible and instructive, and much to our aid and assistance in these researches. When we come to sum up and offer our views of the nature of this affection, having first set forth all the testimony we can find on the subject, the attention of the careful reader will revert to these practical views of Dr. Hall.

Dr. Judkins' Reply.—*Cincinnati, 4th Mo., 1854.*—DEAR DOCTOR: Thy circular of inquiry relative to "nursing sore mouth," which thou wert so kind as to send me some weeks ago, I have taken the first favorable opportunity to answer.

In the early part of my practice, I do not now remember to

have met with this affection. I often met with diseases, over forty years ago, affecting the mucous tissue resembling stomatitis; also an aphthous condition in children in the same membrane.

Within the last twenty years, but more especially within the last ten years, my attention has been more particularly drawn to notice this adult female disease, for I do not remember ever seeing the disease in any other persons than adult women, and in these only while in the state of lactation.

Females of a lax fiber, thin in flesh, rather of anæmic appearance, are those generally whom I have been called upon to treat for nursing sore mouth. I have known some ladies so predisposed to the affection as never to go through a lactation without it, and others, with slight hygienic directions, to escape during the second and third lactations, and perhaps to the end of child-bearing; showing that a strong tendency or predisposition exists in some females to morbid derangements and ulcerations of the mucous linings of the primæ viæ. I say hygienic directions, by which I wish to be understood well-aired rooms for lying-in women; pretty good diet after lactation is established; bathing the skin often over the region of the uterus, both anteriorly and posteriorly, with tepid water, and after which staying the muscles of the abdomen with a bandage; patients to be taken out after their infants are three weeks old, to ride in the fresh air when the weather is suitable; and to be allowed to receive the visits of affectionate friends at suitable times, etc.

In tracing the symptoms as they are developed in this disease, it has manifested itself as *sui generis*, and is confined in its locality, incipiently, to the mucous membrane of the primæ viæ. I am led to this conclusion from the symptoms only in the living subject, having never yet made a post-mortem examination to prove this position. There appear to be three stages in the regular phenomena of nursing sore mouth, viz.: irritation, inflammation, and ulceration. In addition to these there is (as in most idiopathic diseases) a forming or fixing condition in order to bring about the disease itself, and this is indicated by lassitude, debility, and coolness over the body. Shortly after the lady complains of heat and irritation in the

mouth, with a preternatural secretion of saliva; then follow red spots on the sides of the tongue and mouth, which, in a few hours, sometimes terminate in ulcers; ragged ulcers of from half the size of a three-cent piece to that of a fifty cent piece. Soon after things have developed themselves thus far, the lady complains of pain and tormina all through the bowels, indicating the same altered structure and ulceration in the primæ viæ throughout.

In the second stage fever is observable, and the irritation occasioned by the ulcerations through the track of the first passages keeps it up for some days, say two or three, unless mitigated by some remedy, yet in common incipient cases lactation is but little retarded; but if the disease is permitted to continue for a few weeks, general debility and loss of flesh follow, and the secretions become morbid and the milk fails. Generally speaking, from the time that the first irritation is observable below the pylorus, the bowels begin to act preternaturally, and the dejections are commonly of a thin watery consistence, inclined to light color. I say generally, but there are some exceptions. I have seen cases where the bowels have been confined during the progress of treatment, except when moved by the administration of laxative medicines, but never without pain.

After the disease has been of two or three weeks' standing, by examining a recent alvine evacuation, we discover *floating floculi* in the chamber-vessel of a mucous appearance; this, taken in connection with some of the other symptoms, viz: ulceration, heat, burning pain, etc., in such portions of the mucous tissue as can be seen, lead to the belief that there are ulcerations in the mucous linings of the bowels, nearly, if not entirely throughout the whole track, from which the mucous secretions became separated and found their way to sight.

If this state of morbid derangement continues for two or three months, the body becomes emaciated, hectic fever ensues, and, where there is a strumous diathesis existing, we will have tuberculosis developed, with cough, hemoptysis perhaps, and other fatal symptoms to close the scene.

I will now touch upon the important point in the treat-

ment. Every intelligent physician, with whom I am acquainted, has his favorite prescriptions in this female affection; and as I have been called to prescribe for quite a number of patients, I will only notice what course I have adopted, hoping, that when my experience is added to that of others, something may be sifted out that will be of service. There are two prominent indications to be fulfilled in the treatment: in the first place, we must endeavor to correct the ulcerative process or heal the mucous tissues, and in the second, to restore the morbid secretions and disordered functions to a normal standard.

Unfortunately, the cases that have come under my care have mostly been chronic, and hectic symptoms more or less existed, with diarrhœa, tormina, general emaciation, restless nights, suppressed lactation, etc., etc. I begin the treatment by giving bicarbonate of soda, in fifteen-grain doses, dissolved in a tumbler of water, three times a day, which soon corrects the *acid* and *acrid* secretions in the first passages; and, in order to avert diarrhœa, I combine about five drops of the tincture of opium with each dose; order the patient to be well bathed in tepid water, once in the twenty-four hours, when the exacerbations of febrile action are at the highest point; regulate the diet, and avoid such articles of fruits and vegetables as have a tendency to irritate the tender granulations with which they may come in contact, or may exert an unhealthy influence over assimilation, but at the same time enjoin a generous, or *good rich diet*. After a few days thus treated, I give the patient one of the following pills three times a day.

Nitrate of silver,	.	.	gr. x.
Denarcotized opium,	.	.	gr. iv.
Gum camphor,	.	.	gr. v.
Disulphate of quinine	.	.	3j.

M. f. pil. No. xxv.

As the symptoms vary and improve, I suspend in part or altogether the medicinal treatment, as would occur to any physician, watching the effect of remedies, and the turn and

change of symptoms of the patient. Under this plan of treatment I have, but in one case for several years, been under the necessity of taking the child from the breast of its mother, though I am aware of the great assistance afforded thereby in the cure. Very respectfully, thy friend,

WILLIAM JUDKINS.

Remarks.—Our circular was sent to Dr. Judkins, under standing through some of his patients, whom he had treated for this affection, that he possessed skill in its treatment, and enjoyed some reputation for its successful management, beyond that of the generality of physicians. His success, it now appears, depends on the liberal use of *a salt of soda, tonics and astringents, with good food, and tepid ablutions daily*; a course well calculated to promote, coax, urge, even *force*, the nutritive process. This practice appears very rational, certainly, and in the absence of a true pathology, and the real cause of the affection not known, must be regarded as happy. When we shall have unfolded the *essential nature* of this anomalous affection, the why and wherefore of the success of Dr. Judkins' practice will be clear.

The points of particular interest, then, in Dr. Judkins' paper are, the apparent increase of this affection of late years—delicate ladies its subjects—its liability to recur—good, rich diet a preventive—pain and tormina of the bowels always present in marked cases, together with a watery diarrhœa, and *white flocculi floating in the dejections, as in cholera!* No other contributor to the literature of this affection, we believe, has taken notice of this last circumstance—a very important fact. Doubtless these floating flocculi are cast-off patches or sloughs of the epithilium, the same as in cholera and not mucous secretions, as Dr. Judkins supposes. The tendency to grave local lesions, and the development of tuberculosis, hemoptysis, etc., is another point of importance to be borne in mind in this very practical contribution.

Let us now consider the literature of this disease.

CONTRIBUTIONS TO THE JOURNALS.

The main contributions upon this supposed new form of disease, are from Drs. Hale, Backus, Channing, Bell, Wood, Shanks, Taylor, Holt, Ware, McGugin and King, in the United States, who have described it as it appeared in the extreme eastern, western, northern and southern States. These contributors have described the affection from personal observation, with the exception of Drs. Wood and Bell of Philadelphia, who have given it place in their standard systems of practice as a new form of disease on the testimony of others, and chiefly Drs. Hale and Backus, who were the first to call attention to this anomalous affection through the Medical Journals—Dr. Hale's article having appeared in 1830, and that of Dr. Backus in 1841.

Beside the above-named American contributors to the literature of this anomalous affection, we find that Dr. Marshall Hall, of London, wrote a treatise on a similar anomalous disease, in 1820, designated by the very indefinite appellation of "*a serious affection*," which, appearing to us the same as the nursing sore mouth of this country, we shall begin our synopsis by analysing.

Dr. Marshall Hall's Treatise.—A review of this may be seen in the London Medical and Physical Journal for July, 1820, with copious extracts,—our source of information. Dr. Hall appears to have encountered an epidemic of this affection in the early period of his career, and, without venturing an opinion as to what it was, wrote a treatise of ninety-six pages on it, entitling it, "*Cases of a serious affection chiefly occurring after delivery, miscarriage, etc., and of a similar affection unconnected with the puerperal state.*" The general character of the serious affection of Dr. Hall appears to us to be the same as that of puerperal anæmia, or the nursing sore mouth, since described in the Journals of this country—its victims are the same, and there is a striking similarity in the history and progress of the cases—the whole phenomena in fact, even to the mode of death. Dr. Hall's cases do not, perhaps, appear to have been characterized by as marked a

tendency to ulceration of the mouth as the general run of cases described in this country, though, from the fact that those persons were among its frequent victims, who suffered from "aphthæ with irritable stomach," it is evident that sore mouth was a symptom generally in Dr. Hall's cases.

The causes of the affection Dr. Hall supposes to be, irritability and exhaustion following the shock, drain or fatigue of the system incident to parturition, abortion, or lactation.

The subjects of the disease are those exhausted by diarrhœa or other sickness previous to delivery; those of pale, icterode complexion, who had been anasaruous, or who had suffered from aphthæ with irritable stomach and bowels; those exhausted by repeated and prolonged uterine or other hemorrhage, or depletion for subduing inflammatory diseases; and the naturally delicate and feeble. He has seen it suddenly developed after venesection, and also after full purgation. Anxiety, alarm, and disturbance of mind have seemed to cause it. The affection in some instances came on in the latter period of pregnancy. Sudden and unexpected death sometimes occurred after delivery, or even after blood-letting. By a removal of the exciting cause, as a prolonged menorrhagia or an exhausting lactation, the prominent or urgent symptoms frequently ceased. The affection sometimes proved fatal after a more or less urgent, protracted, and varied course; and in other cases there was long-continued indisposition. The doctor attempts to arrange his cases under six varieties, as follow: "1. The acute; 2. The more continued; 3. With general symptoms; 4. With some predominant local affection; 5. As the effect chiefly of intestinal irritation; or 6. Of hemorrhage. The greater number of cases, however, do not admit of being referred to any one of these divisions, distinctly or exclusively, but assume a mixed character." He arranges his account of the symptoms with reference to the regions of the body affected, as follows:

The head.—"Severe pain, beating and throbbing, rushing or cracking noises, vertigo on assuming the erect posture, intolerance of light and sound, wakefulness, starting during sleep, waking hurried and alarmed, faintness, feeling of sink-

ing, of impending dissolution, overcome by noise, disturbance, and thinking even, and delirium.

" *The heart* is in different cases affected with palpitation, fluttering, irregular and feeble action; there are beating and throbbing of the carotids, and sometimes even of the abdominal aorta; great rapidity and sometimes irregularity of the pulse; faintness or fainting; urgent demand for the smelling-bottle, fresh air, fanning, bathing of the temples; feeling of impending dissolution; incapability of bearing the erect position; and sometimes early fainting from V. S.

" *The respiration* is affected in different cases with panting, sighing, heaving, gasping, moaning, blowing, catching, with urgent demand for fresh air. There is sometimes great and alarming oppression about the chest. There is in some cases an irritative cough.

" *The stomach* is liable to become affected with irritability, sickness, retching, vomiting, hiccough and eructation; the bowels with constipation or diarrhoea, pain, flatus, distension, etc.

Muscular system.—"There are very frequently urgent restlessness, tossing about and jactitation. In some cases various spasmodic affections have occurred.

" *The seats of pain* are usually the head, the side, the iliac region, the loins, the uterus, and the abdomen generally. The pain of the iliac region and of the abdomen are often attended with much tenderness."

Dr. Hall impresses the idea that this affection will never bear blood-letting, although the local affections often lead the practitioner to believe inflammation present. He does not attempt to explain the nature and pathology of the affection. The broken down and debilitated are its victims, and the greater the weakness the greater the susceptibility. *Males are sometimes attacked with this complaint.* The indication in the treatment is to restore the vital energies.

Remarks.—It is very evident from Dr. Hall's account of this affection, its causes, its subjects, its very varied and grave constitutional symptoms, with complete prostration of the vital powers, while seeming grave local inflammations are apt to set in and mislead in the treatment. that the "serious affec-

tion" described by him in 1820, in the British Journals, is identical with the "nursing sore mouth" affection first described in the Journals of this country in 1830 by Dr. Hale; at least it appears so to us, and the anomalous character of the cases being such as to prevent Dr. Hall from naming the disease, is strong confirmation of this. The identity of the two affections being conceded, we here establish another point of great importance in our researches, viz.: that *males are sometimes subjects of the complaint*. This accords with our experience, although the idea has never been hinted in the Journals of this country. We have repeatedly seen men and boys subjects of the complaint, and also girls, as well as suckling women. Hence we infer that pregnancy and lactation are causes of the affection only so far as they tend to impair the general health by confinement or want of proper exercise in the open air, improper restrictions in diet, a gloomy state of mind, exhausting drains by hemorrhage, etc.

The special attention of the reader is invited, in these cases of Dr. Hall, to the prominent symptoms, viz. lassitude, sinking, fainting, interic pallor and anæmia, pain and tenderness of the abdomen, diarrhoea or constipation, aphthous ulcers and other local lesions, hemorrhagic associations, protracted course, getting well when the exciting cause was removed, as an exhausting menorrhagia or lactation, fatal tendency, sudden mode of death after some shock, as parturition, etc. We wish the reader also to notice the sudden development of the disease sometimes after a shock, as blood-letting, catharsis, or merely from the emotional shock of fear. All these are very instructive.

Contributions of American Physicians.—As before observed. Drs. Hale and Backus, appear to have been the first to describe this affection in the United States, and an analysis of their contributions might, very properly, take the lead; but we prefer to place the most accurate account of the disease that has met our view first in order, and therefore give the substance of

Dr. McGugin's Article.—This valuable contribution appeared in the *Western Medico-Chirurgical Journal*, published

at Keokuk, Iowa, October, 1851, and is styled "*Stomatitis in Pregnancy and during Lactation.*" In the outset, the affection is stated to be the ulcerative sore mouth consequent upon and occurring during pregnancy and nursing, particularly described by Drs. Hale and Backus. The idea is entertained that it is a disease peculiar to this country, rare on the sea-board, more common elsewhere. The doctor had met with several cases in two years' practice at Keokuk—says its pathology is not understood, and why it appears in certain localities, and whether or not caused by miasm, not known to the profession. Thinks local causes only act feebly in its production, that the real cause is in the system, for that the disease is relieved when the infant is removed from the breast—has found the scrofulous constitution most subject to it—thinks it arises from faulty nutrition, and that pregnancy, which favors excitement in the lymphatic system, somehow tends to develop it—that the glands of the mouth largely partake in the excitement, and in lax and strumous habits the feeble integrity of the tissues gives way to ulceration. Passing from the doctor's theories, we give his more valuable delineation of symptoms.

"The patient complains of burning heat, similar in sensation to that produced by hot fluids, when taken into the mouth. Food, when taken, even of the blandest kind, is swallowed with pain and difficulty, and that which is solid is masticated imperfectly and painfully. The lower lip is tumefied, and turns out and downward, and in the efforts to speak, the saliva, limpid and scalding, pours over it. There is pallor of the face, an anxious and painful expression of the countenance, and a crescentic dark circle below the eye. The pulse is small and frequent, the skin dry, and the mind irritable and despondent. The mucous lining of the mouth is highly vascular and livid in color, the tongue red and often swollen, and early in the attack small granular elevations may be seen along its edges and tip, and still more highly vascular than even the surrounding mucous membrane. These points are highly sensitive, and much suffering is produced when the tongue touches the teeth or jaw. Very soon these show yellow vesicles on their tops, and in a short time these burst, leaving an ulcerated tip or depression, and rapidly, under the ulcerative process, extend

themselves over the surface. They now multiply in number, and may be found within the lip, under the tongue, within the cheeks, and in the fauces. Now the suffering is great, for the surfaces of these ulcers are most sensitively endowed. They may extend down the cesophagus into the stomach, throughout the intestinal tube, into the posterior nares, down the trachea, along the bronchiæ, and finally involve the lungs in an irreparably diseased condition."

Case.—"Mrs. W——, of scrofulous predisposition, and advanced to the seventh month of pregnancy, had been laboring under stomatitis for three weeks before advice was taken. The tongue, the lips, the cavity of the mouth and fauces, were thickly covered with ulcerated patches. From the difficulty of swallowing, it was also manifest that it had proceeded downward along the lining of the cesophagus, and it was just as evident that the mucous coat of the stomach was also seriously involved. There was much suffering on deep pressure in the epigastric region, and food was rejected immediately upon swallowing it. The symptoms pointed to a diseased condition of the cardiac orifice. There was at this time some constipation of the bowels. After a time, from a change in the voice, together with a sense of tightness of the part, and stiffness of the muscles of the neck, it was evident that the larynx and trachea were suffering also. There was slight cough, with a muco-sanguineous expectoration, and upon retiring to bed, the semi-recumbent posture was chosen to favor inspiration, in which position the head was thrown back. There was slight dullness upon percussion over the entire thoracic surface. There was feeble respiratory murmur, owing to the thickened walls of the larynx, aided, doubtless, by the preternatural smallness of the chest.

"She had now arrived at the eighth month of her pregnancy, the previous month having been spent in the foregoing developments. The symptoms now assumed a more grave character; the cough was constant and harrassing; the sputa thick, tenacious and slightly sanguineous; wandering pains through the chest; respiration difficult at intervals; dullness over the entire thoracic surface, particularly manifest in the superior sternal and the right clavicular regions. There was

bronchial respiration, but no vesicular murmur; irritability of the stomach so great as to reject food, drink or medicine. The dejections showed a large admixture of thick tenacious mucus, similar to that expectorated.

"About the middle of the eighth month the following were the symptoms: There had been a large discharge of pus in coughing; pectoriloquy in right infra-clavicular region; the ulceration had extended to the posterior nares, followed by alarming epistaxis, doubtless from the destruction of a vessel in the progress of ulceration; the irritability of the stomach continues as before; colliquative diarrhoea and hectic fever; cough persistent; sputa purulent and muco-purulent.

"Her confinement, which was now close at hand, was looked forward to as an event which would close her sufferings. All the symptoms continued in an exalted form up to this period, when uterine contraction came on, and her labor was concluded in two hours from the first evidence of uterine effort; was easy, and followed by but little loss in discharges. She, however, began to sink rapidly, and in eight hours from the delivery of the child she died. The child was less than the average, but appeared healthy. In a few days, however, as I learned, it sank rapidly with similar symptoms to those of the mother.

"The treatment was such as would naturally suggest itself; but the irritability of the stomach opposed a serious difficulty to the prosecution of any treatment, or a fair trial of any remedial agents internally."

In commenting on this case, Dr. McGugin notes the rapid development and extent of the local lesions, particularly phthisis, which is ordinarily hushed in pregnancy, but here it was developed.

Where the disease comes on after delivery or during lactation, he says, "it is attended with prostration, and even before the attack there is a sense of sinking and depression." Thinks the drain upon the system in the secretion of milk favors the rapid development of the disease, and therefore the infant should be separated from the mother before she is permitted to sink into hopeless anæmia. Suggests that animal chemistry may, by analysis of the milk, yet throw light on

the pathology of the disease. Illustrates the imminent hazard that sometimes presents—the mother laboring under this affection, and the infant in the critical period of dentition—to wean may be death to the child, and not to wean death to the mother. Such a case came under the doctor's care the summer previous, and caused him much anxiety, but he saved both mother and child. The cure of the mother was ascribed to hydriodate of potash, a nutritious diet of broths, and porter as a drink. Several subsequent cases, he says, yielded to the same course of treatment; one especially, where, in a prior attack, weaning the child had to be resorted to in order to save the mother. Dr. McGugin says he has no confidence in any other remedy. The hydriodate of potash in solution also recommended as a gargle, and iodine to be added where the ulcers are "dark and ill-conditioned." Cinchona, porter, nourishing jellies and soups, and warm saline baths. If these means fail, wean the child.

Remarks.—Dr. McGugin's description of the disease and case reported illustrate the symptoms, progress, fatal tendency and sudden mode of death after a shock to the system, so accurately, that nothing is wanting but the anatomical characters to render his contribution complete. To be sure he infers what, no doubt, an autopsy in the case would have revealed, viz.: ulcerations or lesions of the epithilium throughout the gastro-pulmonary branches of the mucous membrane—that is, in spots and patches. The sero-sanguineous salivation, alarming epistaxis, and development of tuberculosis, justify this conclusion.

We have witnessed several instances of *sudden and unexpected death* after delivery in this affection, as noticed by Dr. McGugin and Dr. Marshall Hall, and shall speak more at length of this feature of the disease in our analysis of cases. Suffice it that we invite especial attention to it in this connection, as also to the *hemorrhagic tendency* spoken of by Drs. McGugin and Hall. The reader should also bear in mind the *prostration and sinking*, spoken of by Dr. McGugin before the disease comes on—that is, before the mouth becomes sore. This is doubtless the "forming or fixing stage" of the affection spoken of by Dr. Judkins. The local lesions, then, are

secondary, according to these contributors, which accords with our experience. Here then we establish another important point in our researches, viz.: that the local lesions of the mouth, fauces, stomach and bowels, posterior nares, and bronchial membranes, are consequent upon the general or constitutional affection. One other symptom, or rather objective sign, noticed by Dr. McGugin, is worthy of special attention; it is the highly vascular and *livid color* of the mucous lining of the mouth, spoken of. The papillary blisters or yellow vesicles that form on the sides of the tongue, and spread to all parts of the mouth and fauces, stomach and bowels, etc., are spoken of by others, as are constipation and diarrhoea. We wish the reader also to take note that a *salt of potash* is Dr. McGugin's main remedy; not that he was the first to call attention to the efficacy of a salt of potash or soda in this disease, but because he bears testimony to this fact. In the dietary he prescribes, viz.: *nourishing jellies and soups*, aided by porter, cinchona and warm saline baths, he agrees well with other contributors. Calling attention to one other circumstance, viz.: the sinking and death of the infant "with similar symptoms to those of the mother," we will close our comments on this very instructive contribution.

The *Contributions of Drs. Hale and Backus* are made the basis of the descriptions of this affection to be found in *Stokes and Bell's Practice*, second edition, page 54; and also in *Wood's Practice*, third edition, vol. 1, page 500. Both of these standard authors, Bell and Wood, have taken it for granted that this is a new form of disease, without ever having seen it, or had an opportunity of investigating its character! Both reflect the opinions of Drs. Hale and Backus, that the disease is at first a local affection or ulceration of the mouth, extending by degrees to the fauces, stomach and bowels, and thus secondarily involving the constitution, and breaking down the general health; and both follow the dogma inculcated by these and most other contributors, that the disease is peculiar to suckling women, though it may possibly occur in the latter months of pregnancy. According to these authors, Dr. Hale's first communication on the subject is to be found in the

Medical Communications of the Massachusetts Medical Society, vol. v., 1830; and his second, in the *American Journal of the Medical Sciences*, April, 1842. Dr. Backus' article in the latter, January No., 1841. We have not seen the original contributions, but the substance of them, as set forth in the articles styled "*Stomatitis Nutricum*," by Dr. Bell; and "*Sore Mouth of Nursing Women*," by Dr. Wood, which are the sources of this analysis of Drs. Hale and Backus' views, and which for reasons that will be obvious shortly, we feel it to be particularly incumbent on us to carefully reflect.

According to Bell and Wood's works on Practice, then, the incursion of the disease is sometimes sudden, and the local affection of the mouth is characterized by loss of taste, scalding sensations, patches of painful pimples on the sides of the tongue and mouth, which after a time ulcerate, and produce very painful sores, with hard elevated edges, and an inflamed circle around them. The inflammation, as the disease progresses, extends over the mouth by means of successive crops or patches of these papillæ; the surfaces of the mouth become exquisitely tender; the taking of food and drinks causes much pain; and a copious salivation sets in. This *local* disease, as it is considered, is not at first attended by febrile symptoms, loss of appetite, or furred tongue, but on the contrary the appetite is good throughout the course of the disease, and the tongue is red and smooth; but if the disease be not arrested, ulceration extends to the fauces, œsophagus, stomach and bowels, and then great intestinal irritation and severe constitutional symptoms supervene, with diarrhœa, debility, emaciation, etc., which overwhelm the patient and often end in death. This gives a condensed outline of the symptoms as recorded in the standard works of Drs. Bell and Wood, professedly drawn from the contributions of Drs. Hale and Backus. Dr. Hale, it is stated, has seen considerable loss of the substance of the tongue by sloughs; and Dr. Backus has noticed so sudden an attack that, "in three hours' time after seeing your patient in health, you may find her with a scalded tongue and fauces, and unable to converse or take food."

The cause of the disease is ascribed to some unknown baneful influence, exerted on the system by nursing.

The subjects are wholly women in the suckling condition; or if pregnant women are attacked, they are those who had had the disease previously while suckling, and had established a predisposition to it. It is very apt to recur in subsequent nursings if a woman has once had it.

The constitutions most liable to it are the leuco-phlegmatic and dyspeptic, which are habitually costive; but others, even the most robust, are sometimes its victims. It appears to be much more prevalent in some localities than others.

The prognosis is generally favorable, if the constitutional symptoms of exhaustion have not run too long; and it is chiefly where there is a predisposition to phthisis that alarm need be felt, and the child weaned. Notwithstanding the wasting and weakness of the mother, the secretion of milk holds out, and the child continues vigorous and healthy.

The treatment is rested mainly on tonics, laxatives, *lemon-juice* and *bicarbonate of potash* in effervescing draughts, *tartaric acid* in small beer, and porter, with nourishing diet; at least this is Dr. Hale's treatment, and very little value is attached by him to local treatment. Dr. Backus recommends chalybeates combined with laxatives. The nitrate of silver is recommended as a local application. Weaning the child is thought to be an effectual measure.

Remarks.—The above is a faithful abstract of the accounts given of this affection, by Drs. Bell and Wood, drawn from the contributions of Drs. Hale and Backus; and no one, we presume, will question the identity of the disease with that described by Drs. McGugin, J. P. Hall, Marshall Hall, Ellsworth, and Judkins. The several descriptions all comport in the main. There is nothing particularly important in the descriptions of the affection as drawn from Bell and Wood, over and above that of others, on which we can rest a point, save in the treatment, viz.: that *lemon-juice*, *tartaric acid* and a *salt of potash* are effectual remedies.

To post up the several points made in our researches, by way of keeping the mind refreshed, we find we have made the following, viz.: 1. The nursing sore mouth is not an affection peculiar to nursing women. 2. It manifests itself epidemically after cold protracted winters. 3. Males are sometimes

its subjects. 4. The local lesions are secondary. 5. The vegetable acids and salts of potash are effectual remedies. These points we think are clearly established, to say nothing of the balance of the testimony, all tending in the same direction, and, as we think, conclusively proving that this anomalous affection, which has been stumbled over by the profession in Europe and America for the last thirty years, is nothing more or less than LAND SCURVY. This has been our conviction for many years, since 1835, when we first encountered it, and met it successfully with anti-scorbutics. In 1851 we reported sundry cases of it successfully treated on this plan, in the *New York Journal of Medicine*, and presumed it was only necessary to call attention to its *real and true nature* to have the matter fully appreciated. We there remarked as follows: "These cases are reported because of their practical bearing. Marvellous accounts of this non-descript disease, called 'nursing sore mouth,' appear from time to time in the journals; and why some one has not set its nature and pathology to rights, who is in the habit of contributing to, and fond of appearing in the journals, I am at a loss to understand." But it seems "we reckoned without our host," for Dr. Wood still adheres to opposite conclusions, which are being widely disseminated. He closes his article on "*Sore Mouth of Nursing Women*," with an allusion to our views as follows: "Dr. M. L. Knapp, formerly Professor of Materia Medica in the University of Iowa, considers this disease as essentially scorbutic; and has treated cases on this principle successfully, which have come under his notice; but the affection, as described by Drs. Hale and Backus, has not the peculiar features of scurvy, and differs probably from that noticed by Doctor Knapp."

Now our object in elaborating this subject is to arrive at the truth. Dr. Wood is a prominent author, his opinions have deservedly much weight, and as we are at issue on a question of fact, as to whether or not the affection described by Drs. Hale and Backus presents the peculiar features of scurvy, we invite a careful attention to the subject. If a scalded, driveling sore mouth in female subjects, exhausted and prostrated by breeding and nursing, displaying increasing patches of ul-

ceration of the mouth, tongue, fauces, and extending to the bowels and bringing on diarrhœa, profuse salivation and complete prostration of the system, development of grave and complex constitutional symptoms and local lesions—if these phenomena do not present the leading “peculiar features” of land scurvy, we ask what symptoms do? and if lemon-juice, tartaric acid, and a salt of potash prove effectual remedies, what then? We are not ambitious to “shiver a lance” with Dr. Wood; but nevertheless, as our views are crowded to the side of error by him, in the diagnosis of a disease in which we have had much experience at the bed-side and he none, we owe it to medical science and humanity, to endeavor to right ourself, and stay the promulgation from so high authority of so absurd a medical philosophy as teaches that this is a *new disease*; that it is *peculiar to nursing women*; that it is caused by some *unknown baneful influence exerted on the system by nursing, etc., etc.*; and that denies that *soreness of the mouth in a suckling woman, anæmia, prostration, salivation and diarrhœa*, present the “peculiar features” of scurvy; and while, in the same breath, it discloses, though unwittingly, the proofs of the affirmative, to wit:—*lemon-juice, tartaric acid and a salt of potash* are reliable remedies!

Dr. Channing's Article.—In the *New England Quarterly Journal of Medicine and Surgery*, for October, 1842, is an article on this affection, with cases, which is epitomized in the *Maryland Medical and Surgical Journal* for December of the same year, as follows:—“*Notes on Anhæmia, principally in its Connections with the Puerperal State*, by W. Channing, M.D.” The cases detailed in this article are quite interesting, and seem to demonstrate the existence of some pathological condition other than the loss of blood, producing the condition which Dr. C. thinks is improperly called *anhæmia*. He ventures to suggest, and sustains his suggestions with great plausibility, that this pathological condition consists, if not entirely, at least in great part, in the subversion of the functions of the capillary system, by which the blood passes from the arteries to the veins, without undergoing its usual changes. The symptoms of this condition are a brilliant whiteness, smooth-

ness, roundness, dryness and warmth of the surface every where; the blanched lips, mouth, tongue; the scarcity of external or subcutaneous veins, and the bright pink color of their contents, with the want of the roundness in these vessels, which results from fullness; various noises in the head, the mind in various states, but generally having a serene anticipation of death. There is tumultuous action of the heart. Dr. Channing, sustained by his cases, infers a close connection between the puerperal state and this morbid condition, and in such a connection the disease is most fatal. The cause of the disease being so obscure as it is, the treatment is necessarily undefined, and can only answer obvious indications. Dr. C. suggests as an inquiry, what might be the effect of transfusion?"

Remarks.—The 'puerperal anæmia' of Dr. Channing is evidently the 'serious affection' of Dr. Hall, and the 'nursing sore mouth' of other contributors. Doubtless also it is the 'hydræmia gravidarum' and 'endangium out of order' of Dr. Meigs, and the 'leucocythemia' of Dr. Bennett. There is something behind the scene in the pathology of all these watery blooded cases, with a powerless fibre, palpitating heart, panting respiration, and a brain looking with serene anticipations on death, that stamp them as more than simply *anæmia*, or loss of blood, as Dr. Channing says, and we fully agree with him that the affection is improperly called anæmia: it is the scorbutic diathesis developed in various degrees and in various ways, and sometimes in delicate females by improper restrictions in diet under medical direction. The materials for healthy blood have been withheld from the dietary, or the organs of digestion so deranged that nutrition and assimilation have become starved of their rights. It appears idle to us to look for the cause of the difficulty in some unknown, mysterious disturbance of the functions of the capillaries, as Dr. Channing suggests, or in the endangium as Dr. Meigs conceives, or in the spleen as Dr. Bennett argues. No doubt the capillaries, the blood membrane, and the spleen are all at fault, and suffer from impoverished blood. All the solids are equally as hydræmic, or leucocythemic, as the blood itself; hence the softening of glandular

structures, and local lesions of the tissues. Where the causes and the coöperating causes are acting powerfully, as in a delicate breeding woman, who has suffered in the earlier months of her pregnancy from morning sickness, and in the latter months from heart-burn, and who has been dieted on tea and toast, ulcers of the mouth should break out before delivery; but under more favorable circumstances there may be no local lesions, and yet very marked constitutional derangement. We have met with cases of years' standing where there were no ulcers of the mouth, only a lividity of its tissues, without salivation, even; and we have known cases of the affection to terminate fatally where soreness of the mouth was not complained of at all.

This leucocythæmia, or white cell blood diathesis, is particularly prevalent in malarious districts. We have seen much of it under such circumstances in both sexes. It is much more frequently met with, however, in females, from the chlorotic girl to the suckling mother, than in males, as the victims of land scurvy are "principally women." (*Good*.) Iron alone is not a sufficient remedy, though we agree with Dr. Meigs (*Letters to his Class On Woman and her Diseases*), that it is a good one; but all the elements of a healthy nutrition, as furnished in the "good rich diet" advised by Dr. Judkins, and the "nourishing jellies and soups" recommended by Dr. McGugin, together with the acidulated drinks of Dr. Hale, must be judiciously brought to bear upon these cases, aided by tonics, and a correct hygiene; which being found effectual, proves our views of the nature of the malady correct.

Dr. Channing infers a connection between the puerperal state and this morbid condition, in which connection the disease is most fatal. Others have inferred its connection only with the latter period of lactation; but we have seen that it is also associated with gestation, and furthermore, that it is often the inheritance of infancy. The majority of infants at the breasts of mothers laboring under it, imbibe it. This we have verified over and over again, during the last twenty years, by the success of the lemon-juice treatment. We have rescued hundreds of puny, suckling infants, covered with

indolent biles, or wasting under diarrhœa, simply by the administration of lemon-juice to the mothers, and throwing away the blue pill mass, etc., with which they were being drugged. Now the records of scorbutus show that infants imbibe the diathesis from the impoverished materials afforded by the milk of mothers laboring under it. And who so blind as not to see the identity? But let us briefly trace this infantile inheritance from nursing sore mouth or scorbutic mothers. If the infants live to be weaned, thousands upon thousands of them perish of cholera infantum during their second year. If some of them reach puberty, the *vis vitæ* is too feeble, and green-sickness sets in, and ends in the local lesion of tuberculosis. If chlorosis be averted by chalybeates and a proper hygiene, still the leuco-phlegmatic constitution is formed in the girl, as her lax solids and palid countenance, leucorrhœa, falling of the womb, and tendency to local lesions of the os, import; and when this victim becomes a mother, nursing sore mouth sets in as a matter of course. Our philosophy, then, goes further back than simply to note that the leuco-phlegmatic constitution is the one for ever liable to nursing sore mouth; it explains the *cause* of this constitution, lifts the curtain and gives us a peep behind the scene.

Dr. Shanks' Article.—This article, "*On Endemic Sore Mouth, and Diarrhœa peculiar to Nursing Women*," by LEWIS SHANKS, M. D., of Memphis, Tennessee," we find epitomized in the December number of the *Maryland Medical and Surgical Journal*, December, 1842, drawn from the *American Journal of the Medical Sciences*, October, 1842, as follows: "In the treatment of this malady, when it occurs in the last months of gestation, as it sometimes does, Dr. S. relieves the excitement in the robust and plethoric by bleeding, followed by alteratives and laxatives, such as blue mass, calcined magnesia, and rhubarb in small doses; in those of feebler health. in whom there is little or no feverish excitement, he prescribes, as a tonic and alterative laxative, a combination of blue mass, ipecac, carb. of iron, rhubarb and aloes in proportions to suit each case. Ipecac alone, in doses of from one half to two grains, is a good remedy.

‘During nursing, when the disease becomes chronic and is attended with diarrhœa and emaciation, a course of alteratives and a rigid attention to diet are indispensable. In some bad cases a solution of arsenic and corrosive sublimate, containing of each a sixteenth of a grain for a dose, given two or three times a day, with a diet and drink of soda with barley water, or of wine and water and milk, has succeeded better with Dr. S. than any other course he has tried. As a wash for the mouth, the infusion of sanguinaria is recommended by him. Weaning the child is indispensable in grave cases attended with much emaciation and nervous irritation. In a description of this disease as it occurred at Rochester, N. Y., Dr. Backus says, the onset is often sudden and the bowels always constipated; and the most successful treatment is with alteratives and laxatives combined; but at Memphis, Tennessee, it comes on gradually and in its well-marked chronic form, which never occurs except during lactation, the constant diarrhœa excludes the use of purgatives or laxatives. In the same city, and in the level alluvial country near it, constipation is rare either in health or disease.”

Dr. Taylor's Article.—We find an epitome of this also in the *Maryland Medical and Surgical Journal*, March, 1843, drawn from the January number, same year, of the *American Journal of Medical Sciences*. It is entitled “*Remarks on a Species of Sore Mouth peculiar to Nursing Women*”; by B. W. TAYLOR, of Monticello, Florida. ‘After having tried various tonics, vegetable and mineral, and laxatives, with only partial success, Dr. T. has found that equal parts of sulphur and cream of tartar in broken doses, to keep the bowels open, constitute the best treatment as regards internal remedies. It appears to have almost a specific influence over this disease. The best external application he thinks is borax. He has also derived great benefit from a weak solution of nitrate of silver. In cases attended with considerable exhaustion, the sulphur and cream of tartar should only be used to the extent of obviating costiveness, if it exist; and tonics, such as iron, chinchona, and elixir vitriol should be given. Porter is also advised. Should the case be complicated with diarrhœa, opiates should be given, with mucilaginous drinks and farinaceous diet. In cases that

prove refractory, wean the child, when a speedy cure will take place."

Remarks.—This article furnishes further proofs of the efficacy of the salts of potash and soda in this disease.

Dr. Ware's Article.—In the *American Jour. Med. Sciences*, 1849, is a brief article on "*Nursing Sore Mouth*, by J. YALE WARE, M. D., of Massachusetts," stating that the affection is rapidly on the increase in that locality. No symptoms or cases are given, but Griffith's myrrh mixture is recommended as an infallible remedy. Nitrate of silver as a gargle is also advised, of the strength of two grains to an ounce of water, and a teaspoonful to be swallowed three times a day if soreness extends to the stomach. It is believed if this course is pursued weaning need not be resorted to.

Dr. Holt's Article.—A brief article appeared in the *New York Jour. Med.*, in May, 1848, from the pen of HENRY D. HOLT, M. D., of New York, recommending the hydriodate of potash in five-grain doses three times a day, given in the compound decoction of sarsaparilla. This had proved effectual in sundry obstinate cases. The doctor says, "without propounding any theory of the pathology of the disease, or *modus operandi* of the medicine, I feel persuaded that the one is as near being a specific for the other as can well be conceived."

Dr. King's Article.—This article of Prof. JOHN KING, M. D., of Cincinnati, appeared in the *Eclectic Med. Jour.*, April, 1852, and although it gives a similar account of the disease to that which may be found in Bell or Wood, presents nothing particularly new in the history or treatment, except that it is stated there *is always a dry, inactive state of the skin*, for which alkaline washes and the spirit vapor bath are recommended. And we take leave to add, that the skin is always *scurfy*, oftentimes sprinkled with *petechiæ*, and in some instances of extreme prostration we have seen *vibices*.

Thus much for the history and literature of the affection, embodying the present state of medical knowledge on the subject. Some few other papers giving an account of the affec-

tion have appeared, we believe; but, so far as we have been able to learn, the disease has never been suspected of being of scorbutic character by any contributor save ourself. We are not able to say what the impressions may now be on the mind of the profession, after an examination of the literature of the affection with the key of explanation offered by us, nor are we anxious at all about the matter further than the interests of science and humanity are concerned. Indeed we would rather regret to have proselyted many to our views in this early stage of our inquiry, lest interest in the subject flag, and would rather invite a suspension of opinion until we shall have pushed our inquiry through its several chapters. A question in practical medicine as important as this, deserves to be well and carefully considered, and all opinions sifted before final conclusions be drawn. This chapter is but preparatory—the collated views of others. If after our researches shall have been completed, it turns out to be the general sense of the profession that the nursing sore mouth affection is a *new disease*, then let it be retained in Wood, and in Stokes and Bell, and inserted in other standard authors; but if it be proved to be *scurvy*, let us study that disease instead, which, we think, has been culpably overlooked of late years.

Doubtless the same liability exists in the human constitution, to take on the scorbutic diathesis, that has existed since the days of Hippocrates, by whom it was first described, and that existed in all time before, and that will always exist to the end of time, under a faulty alimentation or a meagre supply of proper materials for forming healthy blood, perverted digestion, and obstructed aeration.

This faulty condition, no doubt, obtains to a very considerable extent in the present state of society and modes of life, even under our improved notions of the etiology of scurvy and the more general attention paid now-a-days to gardening and fruit culture. The poor inhabitants of cities, who are compelled by necessity to the daily infraction of the laws of a healthy dietary, are thereby rendered more or less scorbutic unquestionably, a standing cause of the aggravation of their diseases, and of the vast amount of infantile mortality in our large cities. and we shall show conclusively.

finish these researches, that the rich and high-born are frequently rendered the victims of scorbutus by mistaken notions as to what constitutes a proper and wholesome dietary; in other words, that restrictions in diet together with sedentary habits inlay the scorbutic diathesis in the systems of many a breeding woman in high life.

ADDITIONAL CONTRIBUTIONS.

Dr. Brainard's Article.—In the *North Western Medical and Surgical Journal*, November, 1849, is an article "by Daniel Brainard, M. D., Professor of Surgery in Rush Medical College." It is brief, so we give it entire.

"The 'nursing sore mouth' is a disease which has only of late attracted the notice of medical writers; yet its pathology and treatment have been investigated with zeal, if not with entire success. It is certainly surprising that such an affection should so long have escaped the notice of observers, if it existed; and equally strange, it may appear, that it should have originated in these latter times. We are inclined to the latter opinion, and suppose that it is on the increase, both as regards its frequency and its severity. These ulcerations, however, are to be regarded only as a local effect of a general cause, which does not by any means confine its influence to the mucous membrane of the mouth, but which almost as often produces similar effects on the vaginal surface, and apparently on that of the small intestines.

The state of the system which gives rise to these ulcerations is anæmia. Those who have been bled often, or confined to a low diet, or affected with diarrhœa, or frequently purged, are the persons affected. It is usually attended by a leucophlegmatic state, pallor of all the tissues, costiveness or diarrhœa and frequent desire to urinate, with smarting pain on urination. In the Western States the diarrhœa usually attacks persons recently arrived from the Eastern States or foreign countries, and is often persistent, and even dangerous. Women in the states of gestation, or nursing, who labor under this affection, are generally attacked with these mucous ulcerations.

The causes of the disease have been already stated to be in general those of a debilitating nature. Lactation, when prolonged, and accompanied by an insufficient nourishment, is by far the most frequent, hence its name, 'nursing sore mouth.'

The treatment most effectual, verifies this view of the cause, A general course of tonics, with nourishing and abundant food, with free exercise in the open air, seldom fail to afford relief. Good beer, ale or porter, with beef and mutton, are the best articles to employ. Iron, and the Vegetable Bitters are of some service, particularly the former. As a local application to the ulcerations of the mouth, no remedy deserves to be compared to the fuming Muriatic Acid, applied with a probe, piece of wood, or brush, to the ulcerated surface; it never fails to relieve when the ulcers are white and circumscribed. When there is a diffused redness and denudation, it should be diluted and used as a wash. Mercurials are especially to be avoided.

To illustrate these brief and very imperfect remarks, I will add some cases which may be taken as specimens of the different forms in which it appears.

Case I.—Mrs. A., a young woman of scrofulous habit and delicate constitution, was affected while pregnant with her first child, with ulcers of the mouth, for which she made use of astringent applications. After using these the mouth was cured; but ulcerations of a very severe kind attacked the genital organs, there being several deep and whitish ulcerated patches about the orifice of the urethra and vagina, which produced great pain and smarting on urination, and pain in the hip, groin, and extending down the thighs. There was considerable constitutional irritation which soon became severe. Local applications had little effect, and the ulcerations continued till delivery, when they disappeared and the mouth became affected, continuing with varying degrees of intensity during the whole period of lactation. At the second pregnancy and lactation, the disease reappeared in so severe a form as to endanger her life and *render necessary the induction of premature labour*, when it again ceased and attacked her mouth."

["Render necessary the induction of premature labor!" We

have put the sentence in italics, in order to impress the reader with a due sense of the importance of understanding the true nature of the disease and rational treatment, and dissuade him from following such a precedent.]

“Case II.—Mrs. C., a young woman of delicate constitution, had, during pregnancy and lactation with her first children ulcers of the mouth. During the pregnancy and lactation, with the third child, it recurred, and was treated by the application of strong Muriatic Acid. This immediately cured the ulcers, but similar spots made their appearance about the orifice of the vagina, occasioning great smarting, with pain in the hip and groin of the side most affected. This appearance of ulcers of the mouth at different times, was attended with great relief to the other symptoms, but on their healing, the ulcers of the vagina were again seen with their attendant effects.

“Case III.—A woman of about 35 years of age had been affected for a long time with a pain in the back, hips, etc., for which various remedies had been used without effect. On enquiry I found the symptoms dated from the period of lactation, and were attended with debility. On examination, several minute points were seen about the orifice of the vagina, scarcely perceptible to the eye, but which when the surface was touched with a solution of Lunar Caustic turned white, revealing the existence of numerous ulcerated points. The appearance of minute red points upon the mucous surface, of a pale color, I have seen in other cases, and it is well calculated to deceive unless a solution of Nit. Arg. of the strength of about 20 grs. to the oz. is passed on the surface. That is the form of application preferred for this situation, the Muriatic Acid being too severe. It were easy to add to these cases, others, where the ulceration of the mouth alternated with diarrhoea, indicating a transfer of the ulceration from the intestinal mucous membrane to that of the mouth, and the reverse. But we are content with simply inviting the attention of the profession to certain relations of these affections, in order that the same connexion may be observed if it occurs elsewhere.”

Remarks.—If the reader will recur to our remarks under

Dr. Channing's Article, page 192, he will find them sustained by Dr. Brainard's views and cases. The local lesions of the genital system, and leuco-phlegmatic constitution, which we there ascribe to *scorbutus*, are illustrated by Dr. Brainard's cases. The local lesions of the mouth, vagina, os uteri, intestines and pulmonary mucous tissues, can only be viewed as "local effects of a general cause;" and together with the "scrofulous habit," "delicate constitution," "insufficient nourishment," etc., as well as the successful treatment, "tonics with nourishing and abundant food," etc., all declare the scorbutic pathology of the affection, which the doctor overlooks, and thinks the disease has "originated in these latter times!" The changing seat of the ulceration has been noticed by others—wherever irritation preponderates disintegration follows. Ulceration or disintegration is the great law of scorbutus, while nature is all the time trying to heal.

Prof. Simpson's Article.—The following, which we find in the *Boston Medical and Surgical Journal*, May 1855, extracted we suppose, from the *Edinburgh Monthly*, shows that Prof. Simpson has been studying the morbid anatomy of the nursing sore mouth affection for some years, under the new-fangled name of:

"CHRONIC PELLICULAR OR ERUPTIVE INFLAMMATION
OF THE INTESTINAL MUCOUS MEMBRANE."

[PROF. SIMPSON makes the following remarks on this form of intestinal inflammation, in addition to some observations published by him in 1846, on the same subject, in the *Edinburgh Monthly Journal*. These additional remarks have not before been published]. (*Boston Ed.*)

"Since specially pointing out this disease some years ago, to the notice of my professional brethren in Edinburgh, its frequency in practice has become generally recognized among us; and all, I believe, are now willing to acknowledge that it is infinitely more common than the total, or almost total, silence on the subject of all our best writers on practical medicine would, *a priori*, lead us to infer.

"*Acute* exanthematous eruptions—small-pox, measles, scarlatina, erysipelas, &c.—are usually recognized as occasionally attacking some parts of the mucous surface, as well as the general cutaneous surface of the body. And there are some specific local inflammations of the mucous membrane, which, if present on the skin, would no doubt there be termed eruptions—as diphtherite, dothinerterite, and perhaps more than one form of diarrhœa and dysentery, &c.

"*Chronic* eruptions, however, of the intestinal and other mucous membranes of the body, have scarcely been acknowledged in modern pathology. But perhaps such chronic eruptions and irritations of the mucous surface will yet be found to be scarcely less frequent or less various in type than the well-known chronic eruptions and irritations of the cutaneous surface. [A good time is coming for clairvoyants].

"Chronic eruptive inflammations of the intestinal mucous membrane are frequently attended, as stated in the preceding notice, with the ejection, in greater or less quantity, of shreds or pellicles of thickened mucus, or of actual coagulable lymph, along with the usual contents of the bowels; and sometimes this pellicular effusion presents the appearance of a gelatinous shapeless mass, or portions of a roundish or tubular false membrane, which is frequently considered by the patient as "worms." Often, however, in apparently other species of chronic mucous or intestinal eruptions, no such secretion is thrown off.

"The pathological anatomy of these morbid eruptions of the mucous membrane has scarcely yet been at all studied on the dead body. In a case where, some months before death from pulmonary tubercular disease, the patient had passed large quantities of "membranous crusts or tubes" from the bowels, Dr. Abercrombie found the mucous membrane of the colon, throughout its whole extent, covered with an immense number of small spots of a clear white color, which, "on minute examination, were distinctly ascertained to be vesicles, very little elevated, but when punctured, discharging a small quantity of clear fluid. [Precisely as in Asiatic cholera]. In a case of still more chronic character, with similar pellicular discharges, which I attended with the late Dr. Wright,

and where the patient died in an extreme state of marasmus, the mucous membrane of the colon and the lower portion of the small intestine was everywhere studded with a thickly-set papular eruption.

[The "pellicular discharges" here spoken of are found in the intestines of those who have died of Asiatic cholera. Masses of cast off epithelium—the "thickly set papular eruption" also, or thousands of little blisters. These little particles of epithelium are the *floating floculi* seen in the rice water discharges of cholera, and noticed also by Dr. Judkins in the diarrhoea of nursing sore mouth. Dr. Dewees also noticed this vesicular eruption *on the skin* in cholera infantum.]

"The principal general symptoms which I have observed in cases of chronic mucous or intestinal eruption, are the following, in different numbers and combinations, and in different degrees of severity in different patients:—

"General indefinable debility and emaciation; a condition often of broken and impaired health, without any very appreciable cause; the muscular system easily fatigued and exhausted; sometimes so much palpitation as to lead to the idea of heart disease; the circulation weak, as shown by the coldness of the extremities, &c.; [the constitutional symptoms of nursing sore mouth] diminution of nervous and mental power and energy, with hypochondriasis, irritability of temper, very often impairment of the memory, sensations of prickling and semi-paralysis in the arms or legs, and sometimes lesions of sense; skin very generally dry and inactive, and in some cases eruptions appear upon it, coterminous with, or vicarious of, the internal mucous irritation [as in scurvy]. The appetite, provided the mucous membrane of the stomach itself is unaffected, may be found scarcely, if at all diminished, but the patient complains of the food swallowed not producing any corresponding amount of strength or nourishment; [precisely as in scurvy] occasionally, again, there is marked dyspepsia; often, but by no means constantly, there is a feeling of heat and rawness, in some part of the intestinal canal, and a feeling of uneasiness and distension rather than pain, in the abdomen; the action of the bowels is sometimes comparatively normal or easily regulated, but they vary in other instances,

both as to torpidity and irritability, [as in scurvy]. The sleep is usually unrefreshing in its proportion to amount.

“ Direct evidence of the presence of, and tendency to, mucous eruptions in such subjects, can generally be obtained by carefully examining the state of the mucous membrane that is within sight. Spots of eruption, and sometimes small ulcerations left by them, will frequently be detected on the inside of the lips and cheeks, and on the gums and tongue, [precisely as in nursing sore mouth]. Much more frequently the palate and throat present, more or less distinctly, the appearances of chronic eruptive disease; as likewise the mucous membrane of the nose. The tongue, with the mucous membrane lining the cheeks, is not unfrequently so swollen as to be marked and indented by the impression of the teeth. Sometimes, when thus enlarged, the tongue is whiter than usual; but in other cases we see it red and irritable; and, more rarely, one or more distinct and broad patches of eruption are seen on its surface, [as in nursing sore mouth]. The mucous membrane of the mouth and throat seems often, in such cases, to be the seat of successive new crops of eruption; and the variation in the general symptoms of the patient would appear further to show that such is also probably the history of the disease on its more internal sites; those successive re-aggravations being sometimes accompanied by a slight degree of chronic feverishness, [ditto in nursing sore mouth]. Sometimes there is a kind of daily periodicity in the morbid sufferings and feelings of the patient. [No better description of the objective signs in the nursing sore mouth affection has been given].

“ The general principles of treatment are, as already stated, the same as those used in chronic skin eruptions.

“ The affection—particularly in its occasional periods of aggravation—is allayed by the use of lime or Carrara water, by aqua potassæ, by subnitrate of bismuth, by doses of nitrate or oxide of silver, or of oxalate or nitrate of cerium; by bitter infusions, as that of quassia, with the addition of two or three drops of medicinal prussic acid; by the cold infusion of Virginian cherry bark, &c. But these medicines act perhaps principally as local sedatives to the diseased mucous surface.

“ As curative constitutional remedies in this affection. 1

have seen most advantage from the salts of cerium, from the use of pitch pills, or capsules of tar, and from the preparations of arsenic. [Bishop Berkley, was it, who wrote a treatise showing that tar water was a most valuable antiscorbutic].

"The preparations of pitch or tar have always seemed to me most useful when they produced their characteristic scarlatinoid eruption on the skin.

"But most reliance ought, so far as I am able to judge, to be placed on small and very long-continued doses of arsenic, as two drops of Fowler's solution, or a pill containing the sixtieth of a grain of arsenite of potass, taken three or four times a-day, [a potash salt but a very bad one]. Either preparation should be taken with or after meals; and it is, I believe, infinitely better and safer to trust to the curative effect of the long continuance of such small doses of this remedy, than to arrive at the same result by throwing in larger doses for the same period.

"After a length of time, and when the general symptoms are much abated, a more direct tonic, as quinine or iron, may be added to the cerium, pitch or arsenic. But at first all tonic remedies appear to be entirely useless, or to lead even to the aggravation of the morbid state of the patient.

"The diet requires to be regulated by the usual rules applicable to dyspepsia. But animal food, in a concentrated form, is often required to sustain the strength, provided it does not irritate. Wine or stimulants very seldom are of benefit. The state of emaciation is sometimes improved by food containing large quantities of fat, as cream, butter, olive and cod-liver oil, &c. When the patient's stomach will not bear or digest such fatty matters, I have seen the daily inunction of two or three ounces of warm olive oil, into the general surface of the skin, followed by the very best effects upon the health and strength of the patient.

"Most remedies will fail to produce a permanent remedial effect, unless the state of the skin be attended to, and its healthy condition restored by frequent sponging with warm water, or with warm stimulating lotions.

"Lastly, external counter-irritation over the abdomen seems to be an auxiliary means of almost indispensable necessity.

A mustard poultice every night at bed-time forms one of the best and simplest means of effecting it; or external counter-irritation with stimulating liniments, or with croton oil, or antimonial ointment, or a strong tincture of iodine, &c., may be used to fulfil this important indication.

"From the nature of my practice, I have seen the disease far more frequently in the female sex, and often in patients suffering under obstinate leucorrhœa, vaginal eruptions, and other uterine diseases. [Exactly so]. But it also often occurs in the male subject, [so says Dr. Marshall Hall also, and so say we], and especially, as it has appeared to me, in men who, like clergymen and others, are subjected to an unusual amount of intellectual work or mental anxiety.—(*April*, 1855.)"

Remarks.—The above is a rich contribution to the literature of the nursing sore mouth affection. Dr. Simpson's first paper on this anomalous affection, was written, it appears, in 1846, during the pestilential years of the Irish famine, potato blight, and scurvy epidemics. No better evidence than this is needed to prove the disease of scorbutic character. Every body knows that these water-blisters of the mucous tissues, are among the first local manifestations of scurvy. Later in the disease or under greater deprivation of proper food, they appear in blood-blisters, or petechiæ, first on the mucous tissues, and finally on the skin.

To what a refinement of "pellicular" sublimity the profession has arrived in the science of Nosology.

Dr. Byford's Article.—A well written paper on the Nursing Sore Mouth affection is contained in the April No., 1853, of the American Journal of the Medical Sciences. This article, "*On Stomatitis Materna*" as it is styled, "by WM. H. BYFORD, M. D., Prof. of Theory and Practice of Medicine, in Evansville Medical College," takes a clever view, in the main, of the subject, without revealing, however, anything new, as to the true nature of the affection. The Dr. has so faithfully epitomized his views at the conclusion of the paper, or embodied the results of his experience and reflections on this grave malady with so much clearness in so concise a manner, that we

can serve our readers no better than to give them entire; after premising that the doctor must have treated many, and some very aggravated cases. He speaks of having seen the tongue half amputated by ulceration, and permanently distorted; and says that several occurred in women pregnant with their first child, continuing through the remaining period of gestation and lactation; and judges that the anæmic condition productive of such grave local lesions must be peculiar. It is very evident the doctor considers it a blood disease, a lesion of nutrition, rather than a local affection; but we will let him speak for himself the sum of his conclusions:

"1st. It is a disease of pregnancy and lactation, more frequently appearing while the patient is in the discharge of the last named function, especially should it be the first child. Certainly, however, often making its appearance during pregnancy with the first child.

"2d. The condition of blood probably gives origin to the local manifestation of the disease. This condition of the blood may arise from the abstraction to too large an extent compatible with the health of the mother's system, of such principle or principles as may be necessary for the support of the child, either through the placenta or the mammæ, depraved digestion and assimilation, and other depressing circumstances connected with certain epidemic visitations and endemic tendencies.

"3d. The local symptoms are irregularly paroxysmal.

"4th. It makes its appearance in three distinct forms, viz: erythematous, vessicular, and ulcerative inflammation of some part of the mouth. The former two generally covering the whole internal surface of the mouth; the latter usually confined to the tongue.

"5th. The first two varieties are migratory, spreading in different cases to all the mucous membrane continuous with the cavity of the mouth; such as that lining the air passages, the lungs, the digestive surface, the cells and cavities of the cranium, maxillary, nasal sinuses, &c.; thus producing consequences varying in gravity and other characteristics with the constitutional tendency of the patient and the amount and seat of the inflammation set up on these surfaces.

"6th. The prognosis is doubtful even in cases that seem favorable, from the complications that may arise by its spreading character.

"7th. That in cases of gravity, medicine will avail but little without a change of residence or nursing, or both.

"8th. Cod-liver oil and tonics, especially the ferruginous, and nutritious diet, are the main hope of success in the simple form. The complicated, of course, will demand remedies suited to the circumstance at the time, and calculated for the same diseases when produced from other causes.

"9th. Local remedies are merely palliative."

Remarks.—Let the reader bear in mind the fact that *scurvy* is an impoverished condition of the blood, of every degree, with tendencies in proportion to produce local lesions, the mucous tissues first yielding, and the phenomena in Dr. Byford's cases are explained, even to the paroxysmal exacerbations of the soreness of the mouth, indigestion, diarrhoea, &c., and the main chance from cod-liver oil, tonics and nutritious diet.

The topography of Indiana is highly favorable to scurvy, as well as Illinois, which will be rendered apparent in our next chapter, and this will account for the frequency and aggravated forms of "Stomatitis Materna" met with there. How completely the medical mind has lost sight of all forms of the scurvy!

Dr. Hutchinson's Article.—"Stomatitis Materna.—A Dissertation read before the Hendricks County Medical Society, Ind.—By DAVID HUTCHINSON, M. D." (*Western Lancet*, April, 1855.) Although this paper of 23 pages contains but little, that is new, yet it is valuable as confirming the observations of others. We will not take the trouble to give a synopsis of this long paper, but simply cut out the most pithy portions as extracts. The author says:

"It would be fortunate if the disease would confine its ravages to the mucous membrane of the mouth, fauces and oesophagus; but we find that it attacks all the mucous surfaces of the body, and produces inflammation and ulceration in organs important to the continuance of life, travels through the whole extent of the alimentary canal and produces ulcerations of its

coats; seizes on the mucous membrane of the larynx, trachea, and bronchiæ, and awakens into action fatal disease of these organs, and of the lungs; follows the nasal passages into the different cavities of the skull and maxillary antrum, and induces permanent inflammation there. It has been known to travel through the eustachian tubes to the cavity of the tympanum, and thence to the mastoid cells. It also attacks the mucous surfaces of the vagina. Two of my cases had ulcerations of the vagina, being of such a distressing character that they urgently demanded relief, occasioning much pain and smarting during urination, and it is to be regretted that this affection ever got the name of stomatitis, as the affection of the mouth is but one of the pathological conditions that obtains. * * * *

"We have seen one case, in which ulcers in the mouth, diarrhœa, and vaginal ulcerations followed each other in alternate succession. But it is to be remarked, that when they leave the mouth and attack another portion of the mucous membrane, there is no improvement of the general health; and consequently, it shows that a cause of a general pathological character exists. * * * *

"In addition to these local symptoms, (for they are but local effects of a constitutional cause,) derangement of the digestive and assimilating organs claim priority. Though the sore mouth is usually the first symptom that attracts the attention of the patient—for it often comes up very suddenly—yet derangement of the stomach and bowels always, to a greater or less extent, exists for some time before the occurrence of the buccal ulcerations; and the greater the gastric derangement, the more extensive and difficult to heal are the ulcerations of the mouth. The patient is much troubled with flatulent and acid eructations, a sense of weakness, burning and oppression at the epigastrium; frequently has to loosen her dress, to alleviate the feeling of distension; has slight febrile irritation of an evening, of a hectic or asthenic character. It appears that everything that the patient eats, takes on the fermentative process, and there appears to be too copious a secretion of an acid fluid in the stomach. The bowels are either con-

finer or too loose; and we would readily think that the patient labored under one of the many forms of dyspepsia."

The author speaks of irritable bladder, "preventing sleep at night from frequent calls to urinate," as another symptom, that often "exists for several days before the accession of a paroxysm, either of the sore mouth or of the diarrhoea," and says he has ascertained the urine to be "above the normal specific gravity, and highly acid. These two points have been universal in all the cases examined."

We consider the following new and important, especially the sentence we have italicised.

"I procured about four ounces of the urine, which was highly acid and of high specific gravity. Under the microscope the figures of urate of ammonia in the globular form, were very numerous, but very small; *there were also fibrinous tubes and cysts of the kidneys, with epithelial scales.*"

These observations prove that the urinary branches of the mucous membrane are subject to the same blistering process as the mouth, intestines, &c., and the casting off of the epithelium—the "pellicular" disease of Prof. Simpson, in the urinary passages. The same character of eruption and cast off sloughs are among the post-mortem appearances in cholera; in the intestines, urinary passages, and lungs.

"Hence, we see from the examination of several authors, whose opportunities and abilities, were well calculated to determine the condition of the blood in pregnancy, that all coincide in their observations, that there universally exists a diminution of the blood corpuscles, and of the solids generally, and an increase of fibrin; and although, at no very remote period, physiologists maintained the doctrine, that fibrin was essential to the development of the tissues, yet, strange as it may seem, quite a reverse doctrine is now taught, both by physiologists and pathologists. Andral and Gavaret, in their extensive researches in the comparative physiology of the blood; found that an improvement in the breed of an animal, tended always to increase the proportion of the corpuscles, and likewise to diminish the fibrin; and we find the same inverse ratio, between the fibrinousness and the perfection of the blood, in the facts; that there is little or no fibrin in the

blood of the foetus, none in the egg of the chick, none in the chyme, and less in the blood of the carnivora (who feed on it) than in that of the herbivora. Hence, we are forced to the conclusion to which Simon comes, that we must regard the fibrin as an excrementitious product, derived from the waste of the tissues, or from the oxidation of the blood; and consequently in progress of elimination from the system.

"Instead of the blood of the mother becoming improved after parturition, it is still further impoverished by lactation; and unless the proper nutriment and medicines are introduced into the system, emaciation proceeds rapidly, and the tissues become very pale, showing a great want of blood corpuscles. We may therefore safely arrive at the conclusion, that pregnancy and lactation, and impaired digestion are the causes of stomatitis materna.

"Those who are dyspeptic, and have suffered from leucorrhœa, hemorrhages, and who have the menstrual discharges while suckling, are generally the most liable. You will frequently find the patients with carious and decayed teeth, produced by the acid state of the saliva; healthy saliva is alkaline, test paper shows it to be acid in this disease."

The author speaks of tenderness and irritation of the gums, in several places, which we consider an important observation, tending to establish the scorbutic pathology of the disease.

"But, how does a poor state of the blood produce inflammation of the mucous tissues? Without stopping to theorize on this point, we answer, that we have a similar inflammation of the mucous membranes in other diseases, in which the blood is impoverished, as scrofulosis, &c., in short, there is a striking analogy in the chemical composition of the blood in these diseases, and that of pregnant women. If, then, our views of the pathology of this disease be correct, the treatment is obvious, and it is rather a consolatory circumstance, that the treatment is becoming well established. We make two prominent indications. Indication 1st. To correct and improve the digestive organs, and restore them to their normal function. Indication 2nd. To supply the blood with such nutriment and medicines, as will augment the blood corpuscles and decrease the fibrin."

In carrying out the above indications, or in Dr. Hutchinson's treatment there does not seem to be anything new. Rest, astringents and opiates; cod-liver oil, quinine, bismuth, soda, turpentine, iron; Rochelle salts if costiveness prevail; and nutrition, constitutes his curative agents. He advises animal, rather than vegetable food, because of the tendency to acidity, and thinks wheat bread, and also sugar objectionable on the same ground. Says also that, "patients do not bear vegetable acids—apples and other sub-acid fruits increasing their gastric difficulties." Now this is partly true; raw apples are difficult of digestion by weak stomachs—they should be roasted. But vegetables, acids, and fruits are what nursing sore mouth patients especially require. Tonics, and soda to correct acidity, must, together with counter irritation over the stomach, enable it to do its duty. We refer the reader to our analysis of cases.

"Tabular statement of 12 cases of Stomatitis Materna, showing the direct ratio of the severity of the disease; as compared with the immature age of the individual, and the number of births, crowded into a short space of time. By WM. LOCKHART, M. D.

Case	1	Aged	24	Years	3rd	Child	Max.	Severity
"	2	"	26	"	3rd	"	"	"
"	3	"	25	"	4th	"	"	"
"	4	"	22	"	3rd	"	"	"
"	5	"	17	"	1st	"	"	"
"	6	"	21	"	1st	"	Min.	"
"	7	"	25	"	4th	"	Max.	"
"	8	"	23	"	3rd	"	"	"
"	9	"	22	"	1st	"	Min.	"
"	10	"	20	"	1st	"	"	"
"	11	"	20	"	1st	"	"	"
"	12	"	21	"	1st	"	"	"

In four of the above cases Crural Phlebitis, was an accompaniment.

In 7 of them (all that were examined) the urine was highly acid: and in all, at some stage of the disease, severe pain was felt on passing water; doubtless on account of an excess of acid (uric or its salts urate of ammonia, or urate of soda,) such being the case in the cases tested.

In one of the cases (case 5th, aged 17 years,) the disease persisted for eight months; and during the latter part of the

term of her sickness, albumen was found in the urine, in connection with epithelial cells, altered blood globules, and uriferous tubules."

Dr. Maris's Article.—In the May No., 1855, of the "Ohio Medical and Surgical Journal" is a paper on the "Sore Mouth of Nursing Women, (Stomatitis Materna), by GEO. W. MARIS M. D." from which we make extracts.

"The 'sore mouth of nursing women,' the name we prefer, and the most familiar one known to the profession, is manifestly a follicular inflammation, produced by impoverished blood, and consequently attended with a low grade of vascular action. * * * * *

"**PATHOLOGY.**—The local disease or "*mouth sore*," we regard as the mere expression of a deeper, though less visible and tangible trouble, viz: *a blood disorder*. * *

"A few weeks since, we were called to see, with Prof. Dawson, a lady in her fifth month of gestation and her fourth child. We found her moribund. She was perfectly anæmic, as white as alabaster, and had been more or less so during each period of gestation, frequently suffering from 'sore mouth' and its concomitant evils. From indications, the fœtus had perished some time previous. In this instance, death manifestly resulted from the failure of the act or function of utero-gestation, consequent upon an exhausted or impoverished blood, during which struggle the life of both mother and child were sacrificed. As in all similar cases, the 'sore mouth' here was but a link in the chain of diseased action, and the offspring of the same evil, viz: *blood deficient in its normal elements*.

"This deficiency more particularly concerns the *red corpuscles*, with an increase of the fibrinous element, now regarded by physiologists and pathologists as an excrementitious product, or waste tissues of the body. (Simon). * *

"**SYMPTOMS.**—We have said before that the 'mouth sore' is but the expression of a deeper disorder—an impoverished blood. The stomach, failing to receive good food for its support, creates imperfect chyle globules, and these in turn imperfect blood corpuscles. The first symptoms, then, as might be anticipated, are those of a dyspeptic character. The patient

complains of debility, loss of appetite and eructations, flatulence, uneasiness and oppression at the pit of the stomach. Along with these symptoms, upon examination, will be found urinary derangement, with painful micturition, &c. Following these ailments, after a longer or shorter duration, a scalding sensation of the mouth is complained of. * *

"Upon inspecting the mouth about this time, it will be found to present the appearance of simple inflammation, (stomatitis) patches or spots being observed on the inside of the lips, on the tongue, or upon the fauces.

"After a longer or shorter duration, and with proper treatment, this soreness or other symptoms subside, and an interval of relief follows, or, the case becoming aggravated, small, transparent, greyish or whitish vesicles become visible, having a raised ring at their base. Subsequently the vesicle breaks, an ulcer follows and spreads, the ring gradually disappearing. Cicatrization succeeds, sometimes rapidly and again tardy, whilst ulceration is very apt to recur after it has once healed. (Dunglison). The eruption may attack consecutively any of the mucous passages. Cases are on record, where a transfer of the irritation to the vagina, the nasal passages, the larynx, bronchiæ and eustachian tube took place, thus shewing not only its migratory character, but also that the producing cause is *one of a general pathologic class*.

"In cases tending to a fatal issue, the entire tract of the alimentary tube may become involved, and hence after death, the stomach and bowels often exhibit traces of follicular inflammation and ulceration.

"TREATMENT.—Under an idea of Plethora, (all diseases of pregnancy were formerly so regarded) our predecessors relied upon *anti-phlogistics* as the only safe line of action, and with what success, the reader may well judge. Examining the "sore mouth of nursing women" in the light of its present pathology, the necessity of a tonic and invigorating course will be at once obvious. Our plan of treatment is two-fold. First, to correct and improve the digestive organs. Secondly, to furnish such materials to the blood, artificially, as will augment the amount of its red corpuscles and decrease that of the fibrinous element."

Remarks.—The above extracts contain the gist of the writer's views. There is nothing new or peculiar in his treatment. .

We wish the reader to bear in mind Dr. Maris's views of the cause of the disease, viz: "*The stomach failing to receive good food for its support, creates imperfect chyle globules, and these in turn imperfect blood corpuscles.*"

Now who does not know that a failure to receive proper food, inevitably inlays the scorbutic diathesis. Religious persons who mortify themselves by long and rigid fasting, become scorbutic. We have seen the evidences of it in such persons, not only in the foetid breath, and puffy gums, but in the loss of teeth, yea, in the loss of life! By reference to our analysis of cases the reader will find a case of death from this cause.

Persons starved to death display the objective signs of scurvy in the mouth. (*Lind*).

The scorbutic diathesis is the natural pathological condition, then, that all persons fall into under deficient or defective nourishment, or any abuse of the natural laws of alimentation persisted in, gluttony, drunkenness, or otherwise—poverty and want, or the abuse of plenty. Nobody, is scarcely, free from some degree of taint.

Hence we see how difficult it is for delicate breeding women to escape scorbutus with its tendencies to local lesions, first in the mucous tissues, and so on to denser structures. No other view of the pathology of the nursing sore mouth is adequate to account for the constitutional and local symptoms.

Dr. Hubbard's Letter.—We have failed to get the No. of the American Journal of the Medical Sciences, which contains Dr. Hubbard's article on the Nursing Sore Mouth, and therefore insert a letter from him, in which he alludes to the points of interest in the paper. We also quote what Hutchinson says of Dr. Hubbard's views.

"DEAR SIR.—Please accept my thanks for your novel and interesting publication on the 'Nature, Cure and Prevention of Epidemic Cholera.' I should have acknowledged the obligation long since. From its perusal I derived no little pleasure. I am quite prepared to believe that the scorbutic dyscrasia is

a powerful predisponent, cause of cholera and many other diseases.

"The paper on nursing sore mouth written by me, (of which you speak in pencil, note on margin of publication.) may be found in *American Journal of Medical Sciences*, 1833, Jan. No. XLIX., New Series, page 269. There may be two new ideas in that paper, to wit. viz., that the disease is ordinarily accompanied by intestinal ulceration, and secondly, that in order to cure the mouth, special treatment must be given to the intestines; and perhaps a third idea (new) in this connection, viz., that astringent medicines are quite effectual in healing these ulcerations, when used in the form of partially insoluble pills.

[Dr. Hubbard, of Ashtabula, Ohio, saw at one post mortem of a well marked case of stomatitis materna, from which the patient died, (the buccal ulcerations preceding the diarrhoea) five ulcers of about three lines in diameter, indurated and very deep; three of them situated in the colon, and two in the illium—the surrounding surface being healthy, or nearly so. Dr. Hubbard is of the opinion that the intestinal ulcerations exist in all well marked cases, and that the disease is essentially ulceration of the mucous follicles. He uses the sulph. of zinc, as an astringent, combined with ipecac, resin, mastic, and white turpentine; the combination preventing the solution of the zinc till it reaches the intestinal ulcers. He says, that he could detail seven cases, in which this treatment was completely successful. HUTCHINSON on *Stomatitis Materna*.]

"Let me here mention one observation in regard to Stomatitis Materna, though it be opposed to your theory of its scorbutic origin. That is, I have hardly ever seen a case among the really poor: here it prevails among people who are able to live well.

"I have spent a good part of two seasons in the 'Iron and Copper Regions,' of Lake Superior where, until, this last summer succulent vegetables were ever expensive, often entirely consumed by early spring, so that until a new crop was raised the daily fare for months would be wheat-bread (superfine,) fresh fish and salt meat. Cases of Scurvy were of course

common during the Spring months, followed by diarrhœa and dysentery, during the summer season; and mucous diarrhœa of a remarkable fatality used to scourge that region, sweeping off multitudes of children: those under three years of age were quite obnoxious to the disease. Intelligent medical gentlemen residents, informed me that but few children had been reared at the Copper Mines, and I can from personal observation declare that there has been heretofore, extraordinary mortality among children in the "Iron Country," at Jackson and Margaretta villages. Diarrhœa among adults is very common, and during the summer it is prone to assume a chronic form—and to grow to ulceration. It is the popular opinion that the free use of berries (acid) arrests epidemic diarrhœa, and dysentery, and my own observation confirms this conviction of the people. The huckle and red berries are abundant there, but do not ripen until the middle of August. The suffering inhabitants seize upon them as if by instinct, and the pestilence is stayed. During my long visits to the 'Iron Country,' I was so well convinced that the scorbutic diathesis was a powerful and indeed an almost exclusive agent in the production of their to me extraordinary intestinal disorders, that I steadily urged upon the settlers the necessity of raising more vegetables, and the smaller acid fruits, currants and berries, and of using freely good dried fruits, and 'sound cider.'

"The intestinal fluxes of that country are not wholly owing to scorbutus, for the climate is remarkable for sudden and great changes of temperature in summer. While the days are often quite warm, the nights, except only about two weeks in August, are so cold that if a fire is not necessary, it is comfortable to sit by. Add to this cause (great alternations of temperature,) careless clothing, 'Camping out,' exposure to rains, irregular eating and sleeping, and you have the adjuncts of scorbutus in the production of those diseases. [Developing causes]. A red mouth was often noticed, but I do not think I saw a case of Stomatitis Materna. Epidemic Cholera has not prevailed with severity north of Sault St. Marie. At that point and Mackinaw, it has been very severe. At those places succulent vegetables and fruits have ever been

very expensive, often not to be had at any price. Please excuse the liberty I have taken in writing you at such length.

Yours respectfully,

J. C. HUBBARD."

Remarks.—This contribution is valuable inasmuch as it gives the post-mortem appearances—ulceration in the bowels. The reason why women of the poorer class are less troubled with nursing sore mouth, is because they are under the necessity of toiling for a livelihood, and *active exertion wards off Scorbutus*

The letter is valuable for the testimony it bears to the efficacy of acid fruits in curing the watery and bloody fluxes of the belly—corroborating our views of their scorbutic nature.

Dr. Reyburn's Notice.—In the transactions of the "American Medical Association, Vol. 8, page 249," in DR. REYBURN'S Report on the diseases of Missouri and Iowa, is the following:

"*Nursing Sore Mouth.*—Cases of this disorder were reported in St. Louis, in December 1854, and January and February 1855. From information given us, we learn that the disorder was intractable, diarrhoea usually accompanied the stomatitis; in some cases there was tenderness of the precordia with other signs of sabacute gastritis. Irritative fever was attendant on it, and, in some subjects, the secretion of milk was suspended. In all anæmia and emaciation became more or less marked. These cases, which were somewhat numerous, are the first of the disease that we have ever known in St. Louis."

Remarks.—The extraordinary summer season of 1854, accounts for the epidemic outbreak of nursing sore mouth in St. Louis. The Evening News of Sept. 1st, of that city, says of the hot weather of that season as follows:

"The long continued hot weather is almost unprecedented in this city. For almost four months the thermometer has ranged in the neighborhood of 100° as often above as below. Yesterday there were seven deaths from sun-stroke reported, and probably several more not known."

The Republican of Sept. 19th, says:—"Office of the Board of Health.—For a few days past this office has resembled a

hospital more than anything else. The sick from the city and country have poured into it, and sometimes the place has been almost jammed with invalids lying over the floor, on the door-steps, and leaning their emaciated forms against the walls pleading for relief," &c. (*Reyburn's Report on the diseases of Missouri and Iowa: Transactions of the A. M. Association, 1855*).

It appears by said report that diarrhœa, cholera, cholera infantum, dysentery, sunstroke, and yellow fever prevailed; and that all except the last were epidemic and very fatal. An epidemic of biles, of jaundice, and nursing sore mouth followed. It was a very sickly year—there was a general blight of vegetation, and vegetables and fruits were of the poorest quality, extremely scarce, and bore three or four prices. Now what seems strange to us is, that no allusion is made to defective and deficient alimentation as causation of the sickness! It appears plain to us, that, under the extraordinary circumstances above specified, the scorbutic taint was inlaid *generally*; and developed by heat and the accidental circumstances and conditions surrounding each individual falling sick. Some stood it through, some fell of sunstroke, according to the scorbutic law of sudden death; in immigrants it was cholera; in infants cholera infantum; and in many nursing women it took the form of nursing sore mouth.

We are aware that Dr. Drake, in treating of alimentation, and *want of sufficient food* as a questionable cause of disease in the West, comes to the conclusion that there is an abundance of food for all in the Mississippi Valley. Yes, there is an abundance of pork, bread, and coffee! But will this diet, be it ever so abundant, maintain health? We say not. It will inevitably inlay scorbutus. The laws of diet are but imperfectly understood, and our investigations and researches aim at an elucidation of this all important subject.

The efficacy of the acid treatment of diarrhœa, cholera infantum, and of Asiatic cholera, set forth in said Report, page 260, sustains our view.

Dr. Pitcher's Article.—The Peninsular Medical and Surgical Journal, Feb. 1856, contains an Article, entitled "*Por-*

phyra, or Scurvy as Originating from Moral Causes—and also from Insufficient Nutrition, when Supervening upon Typhoid Fever. By Z. PITCHER, M. D." Not being a subscriber, and receiving the No. containing said article, we infer the author sent it knowing we were making researches in the same direction into the *overlooked* associations of scorbutus. We thank the Dr., for this polite attention, and use the article to especially illustrate our view that the nursing sore mouth and scurvy are identical; one of his cases (which fact, however, his sagacity overlooked) being a fatal nursing sore mouth affair.

Not caring to follow the Dr. through all his observations, suffice it that we quote that portion of his paper pertinent to our purpose.

"Here, where the Typhoid diathesis has predominated for the last five or six years, instances have occurred during the past autumn, which show how it can be melted down and recast into any one of the related forms of disease, the product being varied by the mode of treatment; the heroics of modified Thompsonianism producing one result, the stolidity of Hahnemann another, and the Hydraulic system a third, modified by the partnership it may have formed with one or the other.

"This blending or interfusion of nosologically rather than pathologically distinct affections [reader mark this] has received confirmation from the effect of the most antagonistic of these modes of treatment. The Eclectic or Thompsonian producing gastro-duodenitis, with symptoms in some cases simulating yellow fever and in others the lividity of cholera, whilst the fasting appertaining to the folly of Homœopathy, has suffered the depravity of the fluids to increase from day to day, and the nervous energies to become exhausted, till the tissues gave way and the blood escaped from every outlet of the body."

"A Daniel come to judgment"—the "Typhoid diathesis" under varied conditions developed as yellow fever, cholera, or scurvy. Before the reader gets through our nursing sore mouth monograph, he will find others also testifying to this interfusion of typhus into other forms of disease; and he will find testimony also showing that "*deficient nourishment*" will

inlay the "Typhoid diathesis." Is not the ideopathic pathological condition Dr. Pitcher is treating of, then, a scorbutic state of the blood? Is not typhus, scorbutus? Not "*nosologically*," but "*pathologically*." Deficient nourishment will inlay it, and proper and sufficient food cure it. (See Dr. Charles Hooker's able Report on "the diet of the sick," in the transactions of the American Medical Association, Vol. 8, page 480.) But let us have Dr. Pitcher's illustration.

"On the 29th of August, I was requested to see Mr. Gager, who, I was informed by the members of the family in which he lived, had been under the care of a Homœopathist, who had been treating him for Typhoid Fever for the preceding twenty days, during which time and for five days previous to the commencement of his attendance he had had no alvine evacuation at all and scarcely any nutriment. He was quite delirious, and trembled like one in delirium tremens. The pulse was small, frequent and feeble. Skin covered with petechiæ and patches of ecchymosis. Gums spongy and teeth loose. A dark blood oozed from the mouth, nostrils and ears, and the urine was also bloody.

"Some nutriment was provided for the young man, and his bowels gently moved by tea-spoonfull doses of olive oil, to which five drops of Spirits Turpentine were added. The dejections occasioned by this measure consisted of a pultaceous mass of black blood. As was expected, he continued to sink, and died on the thirty-first of August."

No one can doubt the termination being scorbutus.

Now for the nursing sore mouth case. The Dr. says, "The notes of the following case were furnished by Dr. Christian, of this city." (Detroit).

"Mrs.—, when she came under my observation, had been about twelve months under homœopathic treatment, which had brought her *successfully*, and with great *eclat* to the doctor, through *dropsy* of the *heart*, *inflammation* of the *brain*, *Typhoid Fever*, and lastly her confinement. [Puerperal Anæmia].

"From information elicited on examination into the previous history of the case, the dropsy of the heart appeared to have been some functional derangement consequent upon an anæmic condition. The inflammation of the brain apparently was

neuralgia, arising probably from the same cause. [Constitutional symptoms of nursing sore mouth].

"When we first saw her, several weeks after her delivery, she presented a perfectly bloodless surface, mouth and throat distressingly sore, exhausting diarrhoea, and vomiting of every thing taken into the stomach, even to the sugar pills which, however, continued to be administered and taken with astonishing perseverance, and all nourishing diet strictly prohibited. [Constitutional and local symptoms of nursing sore mouth].

"Although to the perception of nurses and friends, the patient was fast failing, the attendant could see, or affected to see, nothing but daily improvement.

"At length, tormented by the distressing vomiting which followed upon taking her pills, and eager for more substantial nourishment, the patient one day, by the advice of her nurse, discontinued the pills, and resorted to nourishing food. There was no vomiting after it, the diarrhoea ceased, and she had quiet rest at night, which she had not previously for weeks. [A proof that the affection was scurvy].

"But the improvement was only temporary, she was again persuaded to return to the little pills and low diet, and with them all the distressing symptoms again returned. This continued for some days. A change of treatment was resolved upon, and an experienced and eminent physician called in. He at once pronounced an unfavorable prognosis, perceiving that the vital powers were too nearly exhausted for them again to rally. By request, however, he continued his visits and the change was at once apparent to all, in the relief from many distressing symptoms. There was a feeble attempt of nature to rally, but she gradually failed. The vomiting again returned, the matter of which consisted of greenish watery substance ejected by a sudden spasmodic action, hemorrhage occurred from the gums and nares. The soreness of the mouth became aggravated, purpuræ showed themselves on the lower portions of the body, blood oozing from them, and she died." [Plainly nursing sore mouth—palpably scurvy.]

Remarks.—We have no summing up to add to this case of

nursing sore mouth, that terminated fatally a month or so after delivery; but we have a word to say more on typhus and diet, to point this moral.

Dr. Hooker says, (op. cit.) "The published *Clinical Lectures* of the late Dr. Robert J. Graves, of Dublin, contain many rational observations on the diet in fevers. He earnestly impresses 'the fact that there can be no doubt that persons have been occasionally starved to death in fever.' He says that 'long continued denial or want of food generates symptoms bearing a very close resemblance to those which are observed in the worst forms of typhus.' He advises that when a patient is 'laboring under the effects of fever and protracted abstinence,' with no appetite for food, we should 'press it on him, and give it as a medicine.'

Dr. Hooker enforces these axioms by a case of his own, the patient 'picking the bed clothes, sawing the air, agitated with subsultus, tongue black, dry and cracked, pulse, 140,' &c. This patient had taken no food for three weeks. 'With these symptoms, *caused probably more by abstinence than by fever*, [italics ours] it was obvious he must soon eat or die; and to wait for appetite would be folly.' The doctor fed him, and he lived. He says,

"I could adduce other similar cases of patients wrested from impending death by thus forcing a supply of food; cases also tending to confirm the opinion of Dr. Graves, that, in the low stages of typhus, many of the symptoms which are considered as produced by fever are really caused by abstinence."

Now, why will not defective and deficient nourishment produce the initiatory symptoms as well as the closing symptoms of typhus? It will, as will appear further on.

Of 195 patients laboring under typhus, treated by nourishing diet, regularly administered, beginning with little, coaxing the appetite, not overdoing the matter, all but eight were restored to health by it, in Dr. Hooker's private practice. Of 124 thus treated in the Connecticut Hospital, only two died, 'one of whom was admitted in a dying condition.'

Dr. Hall's Letter.—Since the publication of the first chapter of our essay on nursing sore mouth, we have received a second letter from our able correspondent Dr. J. P.

HALL, amplifying his clinical observations upon the nursing sore mouth affection. We extract the following:

"Your essay upon nursing sore mouth, I regard as a valuable acquisition to the pathology, as well as the literature of that disease. * * * * *

"I regret that I had not an opportunity of submitting a case of this disease which occurred a few weeks subsequently to the preparation of my letter in response to your circular.

"The most important symptom present in this case, not noticed in the letter, was a very obstinate diarrhoea; but the specimen was a very complete one and I analyzed it with much more care than I had hitherto done.

"I have also seen another case complicated with purpura and jaundice: the two latter symptoms consecutive. This case terminated fatally, in consequence of hemorrhage—blood escaping from almost every emunctory."

Remarks.—What was this but scurvy? It was very like Dr. Pitcher's case, which he called scurvy; viz.: to all the usual constitutional and local symptoms of nursing sore mouth, were added purpura and hemorrhage oozing from every pore.

This completes our addition to the literature of nursing sore mouth, though doubtless we have failed to gather all the contributions extant. It is getting to be more known and better diagnosed of late years, and the contributions to its literature will, doubtless, continue to fill many pages in the journals. Many able and scientific practitioners do not recognize it yet as a distinct disease, under this name. Witness Dr. Pitcher and Dr. Christian of Detroit; and Dr. Simpson of Edinburgh, has christened it by another name.

To conclude, we repeat what was said two and a half years ago—"We are not able to say what the impression may now be on the mind of the profession, after an examination of the literature of the affection with the key of explanation offered by us, nor are we anxious at all about the matter further than the interests of science and humanity are concerned."

CHAPTER II.

MEDICAL TOPOGRAPHY OF THE STATE OF
ILLINOIS.

THE topography of a country throws much light on the character of its diseases; we, therefore, bring to our aid, in this inquiry, the knowledge acquired from observation of the medical topography of Illinois, where we practiced medicine nearly twenty years, and encountered numerous cases of the anomalous affection under consideration; found it so common or prevalent during certain years, that it may be said to have been epidemic, or sub-epidemic, at least.

It is universally conceded, that the face of a country has much influence over its meteoric manifestations; and it is, perhaps, as generally agreed, that the meteoric phenomena, viz.: temperature, vicissitudes, dryness, humidity, play of electrical forces, etc., are not only direct causes of disease, but that they exert the utmost controlling influence also over the vegetable kingdom, governing production, or the staple crops and fruits, during each and every year, thus not unfrequently proving the indirect causes of disease, from the abridgment of food; as famine, partial famine, and even poor diet, are known to be remote causes of pestilence.

The endemic influences more especially manifested in low, paludal, or marshy districts of country, situated within the temperate latitudes, as is the case with Illinois, are such as to subject the inhabitants to frequent attacks of the common or ordinary forms of intermittent, remittent, and continued bilious fever. So generally is this the case, that few persons emigrating to a new country, of this topographical character, even from lower latitudes, escape attack; those from northern regions and elevated mountainous districts, of old-settled countries, being most pre-disposed. It requires a certain high range of the thermometer, or elevated temperature, to develop the endemic influences, as 65° or 70° F. at least; and for the full effect, that this shall be prolonged for weeks

or months, as in summer; and in proportion to the intensity and prolongation of summer heat, as a general rule, will be the amount and malignancy of the summer and autumnal epidemics. By continuing to reside for a series of years in a country of this character, the complexion of persons becomes darker, or more swarthy, and many are rendered permanently sallow, icterode, jaundiced, or cachectic, in their appearance, denoting dilapidation or impairment of the general health. Such persons will be found to have acquired visceral engorgements, tumefactions, and indurations, which permanently derange digestion and assimilation, and tend to dropsical effusions and organic affections. Children born and reared in localities where these endemic influences are of marked intensity, become old, as it were, while young, presenting a lean, wrinkled, palid appearance, with tumid abdomen and stunted stature, and ordinarily betraying evidence of tardiness of perception and a low grade of intelligence.

In the absence of any positive knowledge of the *nature* of these endemic influences, so deleterious to human health, the medical profession, generally, have tacitly accepted, or acquiesced in the Italian hypothesis of the presence of a poisonous air or miasm, called *malaria* or *miasma*. No analysis, however, of the air in the localities most deleterious to human health, has ever detected any substantive entity or poisonous principle in the air, or the slightest departure from a healthy standard, save, perhaps, a smaller amount of oxygen in very hot weather; and the whole foundation of the dogma rests on inference alone. Other topographical regions, as we shall see, are uniformly subject to marked and peculiar endemic influences, differing in their effects from the above, and hence the notion has arisen of sundry kinds of malaria, and the epithet of *marsh malaria* has been applied to the one under consideration. The hypothesis of different kinds of malaria, however, has never come to be as generally acquiesced in, but rather the hypothesis assumed is, that obscure and diverse manifestations of disease, or masquerades of maladies, are ascribable to marsh malaria *modified* by place and circumstances. For the last century or more, this sweeping hypo-

thesis of Lancisci has held dominion over the records of medical philosophy, growing with its growth, and strengthening with its strength; and upon it, as a foundation, are now erected the two superstructural hypotheses of the animalcular and cryptogamous theories of the *essential nature* of malaria or miasmata! It is generally regarded as the product of vegetable decomposition, whether it be held to be of animal or vegetable nature; and yet its endemic effects have been witnessed in arid deserts, where no vegetation ever existed, much less animal remains, to produce it. By the best authorities, the affirmative of the question, as to the endemic presence or substantive existence of malaria, is regarded as wholly unproven, altogether assumed.

Again, the endemic influences most manifest in high, hilly, and mountainous regions within the temperate latitudes, are such as tend to develop the local inflammations, or the diseases classed as the phlegmasiæ; and especially is it the case that thousands in those topographical regions inherit or acquire the tuberculous organization or strumous diathesis, and die prematurely of scrofulous affections, particularly of pulmonary consumption. The characteristic conformation of system into which the topographical or endemic influences present seem to mould this very large class of persons, is a small, slender chest, a long neck, pinched nostrils, ruby lips, light hair and eyes, and a fair, thin skin, accompanied with quickness of perception and acuteness of intellect. These influences are said to be rendered more operative by consanguine marriages, and the taint is generally believed to be transmissible from parents to offspring.

A third very remarkable illustration of endemic influence is witnessed in the subjects of cretinism, who are reared and dwell in the mountain gorges of the lesser Alps, and other deep gorges and valleys of moderately elevated countries in middle and southern Europe, and in middle Asia, and probably in other deep and narrow defiles and mountain gorges of the temperate latitudes in other countries. Goitre, or the Derbyshire neck, is generally associated with the deformities that betoken cretinism, and ascribed to endemic influences of the same nature. The influences are such as tend to idiotic

deformities of head, a dwarfish, misshapen person, heastly propensities, and idiocy of mind. Every degree of influence is impressed on subjects; some betokening but little of the taint, while others, on whom the vicious influences fall most heavily, degenerate from a bright early infancy to a state of complete idiocy, and the most disgusting deformity. The taint is not inherited, as the children of cretins removed from the localities grow up without deformity; and is doubtless acquired, as infants from other parts transplanted to those mountain gorges, many of them, take on the bias and grow up deformed and debased cretins.

Still another striking illustration of topographical or endemic influence is manifested in persons who work in, or are reared in mines, below the surface of the earth. A considerable proportion of persons, so circumstanced, finally become the victims of a form of anæmia more marked with a perfectly blanched or etiolated expression of countenance, and depraved habit and condition of the system, than are manifested, even, by the subjects of puerperal anæmia, the disease which is the subject of this essay; their blood fades, their strength fails, the skin assumes a transparent alabaster appearance, and a hydræmic state of the system prevails.

These are well-known, uniform, and strongly marked illustrations of topographical influences, not to speak of others; and whether they depend on specific, inscrutable poisons present, or are owing to modifications of diet and the general laws governing climates—modified impressions of the vital stimuli—is not a settled matter. If climatic influences and mode of living have effected the differences in the physical conformation and complexion of the several races, the doctrine held by many, and which must be taken for granted, if all have descended from one pair, it were more conformable to analogy to impute the endemic influences present in any region to habits of living and climatic laws, rather than to specific miasms; for let the occupants of the different topographical localities, or elevations, spoken of, be transposed, and their systems tend to undergo the modifications of acclimation, a climo-vital process injurious in proportion to extreme susceptibility, tenderness of age, or faulty organization—the efforts

of nature (often overshooting the mark) seem to induce the pathological conditions spoken of. Hence, both the danger and advantage that may result from emigration. Hence, also, the origin of the term acclimated. Native organization renders persons more or less adapted to particular climates, and a change of residence is a great resource for invalids.

It follows, then, that there is no climate, dietary, topographical position, or class of endemic influences, present in any one region of the world, perfectly healthful for all races, ages, and constitutions, as a permanent matter the year round. Birds instinctively migrate, to avoid the extremes of heat and cold. Men do the same thing rationally, and escape the endemic causes of disease, developed only under extreme thermometrical influences. Transfer a New Orleans negro to Canada, and he falls a victim to the climate in a year or two; the same of the Canadian who takes up his abode permanently in New Orleans. A striking example of *artificial* endemic influence is seen in the cruel process of producing enormously enlarged livers in geese, by confining them in hot-houses, or before fires, and giving them scanty supplies of food and water, for the purpose of preparing from their livers, thus several fold enlarged and scorbutically softened by the process, the delicate pie so esteemed by the gourmand, called *paté de foie gras*; and this artificial illustration of endemic influence producing visceral engorgements, is by no means barren of instruction in a discussion on topography, climatic influences, malaria, etc. The result is uniform, so far as we are enlightened, and no one would pretend to explain it, we presume, on the hypothesis of the presence of a malaria, though an epidemic should be thus instituted in the geese quarter by the proprietor of a restaurant.

Topography in aid of medical science, then, is to be studied, with reference to physical causes that are known to modify the public hygiene, by affecting climatic modifications in the surrounding vital stimuli, viz.: *food and drink, atmospheric air, heat, light, and electricity*; all of which being absolutely necessary to life, are, therefore, called *vital stimulants*; and no truths in medical philosophy are better known and established, than that mild or medium impressions are

salutary, and extreme impressions hurtful. These axioms hold good in regard to the impressions of each and all of the vital stimulants,—the extremes destroying life, and the mean impressions upholding it and maintaining health. Here, then, are the natural causes of life and health, and the natural causes of disease and death of not only man, but of the whole organized world, animal and vegetable; and whether or not there are any other *external* causes of disease, except accidents, is very questionable. As to the existence of any substantive essence, or imagined malaria or miasma, supposed to be the cause of the endemic diseases of a country, we are altogether skeptical, or rather, be it said, we disbelieve the hypothesis *in toto*. Changes in the force, quantity, or quality of the natural, vital stimuli, as applied to, or as acting on constitutions or organizations well or ill-adapted to sustain the impressions, are, doubtless, adequate and sufficient to carry out the purposes of Deity in the rise and fall, the life and death, of man, and all other forms of organized existence. These being our views, in brief, without detaining the reader with a recital of more than the above general principles bearing on this subject, we proceed to take a summary glance at those physical causes and phenomena in Illinois, that modify the healthfulness of the climate.

PHYSICAL GEOGRAPHY.—The Mississippi Valley is flanked on the east by the water-shed of the Alleghany Mountains, the highest altitude of the summits of which is about five thousand feet; and on the west by that of the Rocky Mountains, the highest peaks of which are some fifteen thousand feet high. The two inclined plains from these water-sheds bear forward their surface-waters, from the east and from the west, into a common longitudinal trough—the Mississippi River, which has its sources in the paludal summit-level region (latitude 49° N.) that bounds the valley northwardly, and divides it from the waters that fall into Hudson's Bay, the altitude of which summit is about one thousand feet above tide-water. The whole Mississippi Valley, then, pitches to the south less than one foot in a geographic mile, by which arrangement all its lateral tributaries are deflected southwardly in traversing the two inclined plains, to pour their

waters into the great central longitudinal channel of the valley, which bears off all both right and left, onward and downward to the Gulf of Mexico, lat. 29° N. Throughout the entire valley, from the sources of the Mississippi to its mouths, intermittent, remittent, and continued bilious fevers are endemic in summer, strongly *epidemic* in some seasons, and increase in force or grade in descending the river, inversely as the latitude decreases, till, at New Orleans, the highest grade of bilious fever passes into yellow fever, which, is often epidemic there.

The State of Illinois lies mid-way between the sources and mouths of the Mississippi River on the eastern side of it. Along its northeastern border, near lake Michigan, is another summit-level water-shed, dividing the St. Lawrence valley from the valley of the Mississippi, elevated about six hundred feet above tide, which turns all the waters of the Mississippi valley in a southwestern direction. At the mouth of the Ohio River, the Mississippi is some three hundred feet above tide, consequently, the whole area of Illinois is an inclined plain, facing the southwest, pitching some three hundred feet, and presenting the hottest exposure of any topographical arrangement whatever. The extreme southern limit of the State, at the confluence of the Ohio with the Mississippi River, is in latitude 37° N., and its northern boundary is $42\frac{1}{4}^{\circ}$ N., and it lies between 10° and $14\frac{1}{4}^{\circ}$ of W., longitude from Washington, being three hundred geographical miles long by about two hundred and fifty broad.

This general view of the hydrography and topographical inclination of Illinois, reveals an exposure of the hottest character, combined with stagnation in drainage; or such a very moderate descent southwestwardly, that the whole face of the State is so tardily drained of the surface-water from rains and snows, that cold and humidity in winter, and heat and humidity in summer are inevitable results, until the retarded surface-water is evaporated, after which heat and drought not uncommonly close the season. We will now proceed to speak of the leading topographical features of the different sections of the State.

SOUTHERN ILLINOIS. — Notwithstanding the physical fea-

tures of the State of Illinois are such as to give it the character of a level country, still its surface in some parts is a good deal diversified. The southern portion of the State, say about one-fourth of its latitudinal extent, is, much of it, very hilly and broken, abounds in lime-rock cliffs, ledges, ridges, and abrupt gorges, and is generally covered with stately forests of oak, hickory, poplar, maple, linden, sassafras, sycamore, etc. Grape-vines are abundant and attain to a remarkable size, sometimes nearly twelve inches in diameter, and the sassafras tree, which is only a shrub in more northern regions, often presents a trunk eighteen inches or even two feet in diameter. A hot-house effect seems to be produced on vegetation in some localities, resulting from topographical causes and an extraordinary richness of soil, viz.: alluvial bottoms with southern exposure, along the Ohio, Mississippi, Big Muddy, and Kaskaskia Rivers, protected by bluffs and forests from the presence of even a cool breeze from the north. This is the case with the alluvial point or extreme southern terminus of the State, where the city of Cairo is situated; and while it may be said to be geographically the most eligible and magnificent location for a city in the Mississippi Valley, the curse of *malaria*, according to the received hypothesis, but as we hold, extreme impressions of the surrounding vital stimuli, will forever render it an unhealthy place. The same thing may be said of other low, humid, confined, oven-like localities in the southern peninsula of the State. These southern regions of Illinois, particularly along the rivers, are rugged without being picturesque; but proceeding northwardly, towards the interior of the State, the beautiful and fascinating prairies soon appear. We speak from personal observation, having, the Wabash counties excepted, threaded and explored, on horse-back, the whole length and breadth of the State, from the junction of the Ohio and Mississippi Rivers to the Wisconsin line, Fever River, and the shores of Lake Michigan: we have traversed its prairies, some of them full thirty miles broad, without a ravine, or a tree, or a "lost rock," even, by which to mark our progress, or guide us in our direction; we have coursed its rivers by steamboat, and its canal and railroads are familiar to us.

MIDDLE ILLINOIS.—The middle portion of the State—say a latitudinal zone embracing one-half of the length of the entire State—has ever been regarded the *ne plus-ultra* region for agricultural purposes, and is of unsurpassed beauty and loveliness in its appearance. It used to be spoken of by our friend, the late Hon. George Forquer, of Springfield, as a “belt” of country pre-eminently adapted to agriculture and railroads; and so frequently was it designated by the appellation of the “belt” in his legislative speeches, during the internal improvement mania of 1836, that he was addressed in debate, by a political opponent of less-favored southern Illinois, as “the gentleman from the *belt*.” This beautiful champaign character of country extends across the entire State, from east to west, and the same general character of open country, or plains interspersed with groves and margins of forests along the water-courses, is continued west of the Mississippi, through Missouri and Iowa, and so on across the Plains to the Rocky Mountains. In the heart of this broad belt of fertile country, in the centre of Illinois, is situated the Sangamon River region, the model portion of the State, and a description of this will serve for a type of the whole State.

The soil is a deep, black loam, of variable depth,—say from one to three feet,—often of much greater depth, where the debris of the soil has accumulated by deposit lying over a chocolate-colored subsoil, of from five to ten or more feet in thickness, and this on a hard pan of blue clay of several feet, sometimes twenty feet, in thickness, impervious to water. Under the blue clay is quicksand, and in sinking wells, wooden curbs, water-tight, are necessary to insure progress after penetrating the clay. The water below the clay, as well as the surface-water, to some extent, is impregnated with carbonate of lime, decomposing soap, and rendering turbid solutions of acetate of lead or nitrate of silver; in other words, the wells afford only hard-water. The surface water, in the wet season of the year, viz.: spring and early summer, is inconveniently superabundant; for, as little or none penetrates the blue clay, the summit level prairies present frequent sheets of standing water, or ponds waiting the process of

evaporation. These vernal ponds are often diversified with archipelagoes of gopher hills and cray-fish chimnies; and where the prairies were not burnt over in the autumn previous, the dried weed-stalks often stand six or eight feet high, sparsely, all over those wet prairies. These summit-level plains between the water-courses, then, are not only open prairies, but often impassable morasses, on account of this miry condition of the surface, in the earlier season of the year. The settlements or farms range along the timber-lines, or forest-belts, that skirt the water-courses on either side.

The rivers run in deep, broad gorges, presenting the appearance of abrupt chasms, sunk below the common or general level of the country. The chasms are broad and deep, in proportion to the size of the rivers; the chasm in which the Mississippi River runs will average, perhaps, some seven miles broad; that of the Illinois River, about three or four miles broad. The borders of these chasms are either lime-rock palisades, or conical hills, with frequent gorges or ravines between. They are called "the bluffs;" are generally clothed with forest timber, sometimes only with grass. The bluffs are high in proportion to the magnitude of the river, and vary in altitude at different points. The bluffs on the Mississippi are frequently two or three hundred feet high, and sometimes present a palisading of lime-rock of this altitude for twenty miles in extent, only interrupted by the narrow rivulet and creek-gorges that cut their way through the bluffs. The marginal forests that skirt the rivers are broad, also, in proportion to the size of the river, and vary in width at different points. The skirting forests on the Mississippi, between the verge of the bluffs and the upland prairies, are not unfrequently ten miles broad. In the Sangamon region the creeks even have marginal forests of two or three miles in width, and the timber is lofty, even to the prairie line—bold, lofty oak and walnut timber of the finest quality on one hand, and the most desirable prairie land imaginable abruptly opening along this fine forest growth on the other.

The alluvial land lying in a river chasm between the bluffs, is called a "bottom." It is almost a perfect level from bluff to bluff. In some places the bottom lands are clothed with

the heaviest and most dense forests conceivable, and in others they present an open plain, or prairie surface. The river cuts a tortuous channel through this alluvial bottom, at one time hugging the right hand bluff, and then playfully seeking the left. In extremely high water, when a river overflows its banks, the water may extend from bluff to bluff, and the river be, indeed, six or eight miles wide.

This character as regards the rivers and creeks of southern and middle Illinois is universal, there is no exception; and the smallest creeks are miniatures of the Mississippi; the abrupt bluffs, the level bottom, the tortuous channel, the muddy water, absence of pebbles—and question whether you will get through or sink in the mire in attempting to ford—characterize all the streams. There is no such thing as a gradual descent to a river. As you approach a river from the open country or summit-level, the prairie begins to be more rolling near the timber, caused by the sloughs which carry off the surface-water. Along this rolling character of prairie are the cultivated farms, and residences of the yeomen of the country. Finally, the surface becomes hilly and rough, and this character of surface is always clothed with brush or forest timber. Now you are getting into the bluffs. The gorges of the sloughs deepen and wind about in the timber; the hills pitch and swell more fantastically, as you approach the river, till, at last, you find yourself on a precipice overlooking the river chasm or bottom, which lies, perhaps, some two or three hundred feet below, and the bluffs on the opposite side of the river-gorge full in view.

Some of these views from the verge of the bluffs are of unsurpassed beauty and loveliness. We question whether the human eye ever rested on a more beautiful landscape scene than is presented at the verge of the bluffs west of Edwardsville, at the head of what is called the American Bottom. You stand high above the scene, on the greater curvature of an immense crescent, the horns of which are distinctly defined for twenty miles on either hand, up and down the Mississippi; the towering bluffs of the Missouri side are full in view; and the grand confluence of the Missouri with the Mississippi lies before you in the valley, which is richly diversified with forest

and prairie, and the most highly cultivated farms. But beautiful as is this immense bottom, an hundred miles long by an average of six or eight miles broad, reaching from Alton down to Chester, and productive as it is, yielding an hundred bushels of corn to the acre, an hundred years in succession, without manure, still it is like the rice plantations of Georgia, or the shores of an African river, in the production of malarious fevers of the most aggravated forms and pernicious type.

NORTHERN ILLINOIS.—The northern part of the State presents quite a different topographical character. North of a line passing from, say about the mouth of Rock River, eastwardly to Ottawa, and up the valley of the Kankakee, the peculiar characteristics of the more southern rivers are gradually lost; the water in them becomes clear, their channels pebbly, often rocky; their course less tortuous; the banks sloping; the precipice-bound river chasms disappear; the rivers are less affected by spring freshets, or by drought in summer, and the drift of geologists is more common; in some places hundreds of granite boulders appear on a single prairie. The Rock and Fox River Valleys are, perhaps, the best wheat regions in the State, and the water power in those rivers is unlimited. The forests are thin and less lofty than in Southern and Middle Illinois. The face of the country is more rolling, and the prairies more undulating and better drained, than in the Sangamon region; but the soil is not so deep, and is more silicious and gravelly. Wheat is the great staple; corn appears stunted. Upon the whole, it cannot compare with Middle Illinois as an agricultural region, in adaptation for stock raising especially.

THE MINERAL COUNTRY, OR GALENA DISTRICT.—This region presents the appearance of an interminable jumble of bald hills. The native forest growth, wherever it existed, has been appropriated to smelting uses, and the eye is fatigued with the sameness of the scene, where all the hills seem to be of equal height, as if cut down out of a level country by sinking surrounding gorges. The city of Galena is built in a deep gorge of these hills occupied by Fever River. There is barely space for one business street along the little insig-

nificant river, so that the back streets have to be cut, terrace-like, in the hill sides. They are reached by carriages with difficulty and danger. There are few cross streets, it being impossible to ascend the hills in a direct line from the river. One-half of the city has escaped from this gorge, and crowns the summits of the hills, some two or three hundred feet high; and, for the convenience of transit up and down, wooden stairways are erected. There are two climates, therefore, in Galena; the climate under the bluffs being desirable in winter, and that above the bluffs in summer.

Agriculture has been greatly neglected in all the mining country, not half enough provisions being raised for home consumption. The country presents no inviting aspect to the farmer; unlike most other localities in the State, the prairies are broad, and without groves of timber, from Galena to the Rock River settlements, eastwardly, and, therefore, not settled upon; and the consequence has been, that supplies, not only for the mining population, numbering, perhaps, ten thousand, but for about an equal population in the city of Galena, have been hauled from the Rock River mills and farms, or shipped from St. Louis. Despite all these disadvantages, Galena has grown to be a rich and prosperous city, owing to the mineral resources of the surrounding country. It is situated some seven miles up the gorge of Fever River, in the Mississippi Bluffs, and the river is rendered navigable only from the back water caused by freshets and floods of the Mississippi. Were it deprived of these accidental advantages, Galena would be without its shipping list. The completion and opening of the projected railroads to Galena will do much for the mineral country.

THE LAKE MICHIGAN DISTRICT.—This region discloses a different topographical character altogether from any portion of the State. The approach from the Des Plaines, and also from the Kankakee River, is over a flat prairie of from twelve to thirty miles broad, constituting the summit-level water-shed between the Mississippi and St. Lawrence Vallies. The surface-water of this table is only gotten rid of by evaporation in the main. The soil is thin and sandy, and a clayey hard-pan lies under it, which prevents the water from sinking readily. The Des

Plaines River banks are only some twelve or fourteen feet higher, topographically, than the Lake Michigan shore; and in the highest freshets, when the Des Plaines overflows its banks, a portion of its waters finds vent into an arm of the Chicago River, and so into Lake Michigan. The first and highest bed or level of the Illinois and Michigan Canal, some thirty miles in extent, from Chicago to Lockport, is supplied with water raised by pumps from the south fork of Chicago River, a lockage of some ten or twelve feet lift, and by means of a feeder taken from the Calumet River, which rises in Indiana and falls into Lake Michigan, in Illinois, some twenty miles south of Chicago.

The Lake shore is clothed with forest timber, except at two points, viz.:—at the mouths of the Chicago and Calumet Rivers. The immediate shore is a sandy beach much traveled in early times before roads were opened. Back of this the sand is blown into hills, drifts, or dunes, of greater or less elevation, which increase in height towards the southern bend of the Lake, where they are an hundred feet high or more, and several miles broad. Thus the shore is heaped up, and is higher than the land back of it, which always prevents any distant view of the Lake. The rivers creep through these sand hills, and disembogue with difficulty—their mouths being all deflected by bars, up the Lake, in some instances many miles, by the powerful north winds.

The Chicago River, since its harbor has been improved by dredging through the sand-bar at its mouth, and the erection of piers, presents a tolerably straight main trunk of about one mile in length, running nearly due east. The main trunk is formed by two branches, one from the north-west, and the other from the south-west, draining, as well as they can, the flat lands lying back from the Lake. The river and its branches are narrow, deep, and navigable, and without apparent current except in time of freshets. On the three sides of this tripod river, stands the flourishing city of Chicago, which, within the last twenty years, has advanced from a mere trading post to be the leading city of the Lakes, having a population at this time—March, 1854—of over 60,000 inhabitants.

Fort Dearborn stands at the mouth of the Chicago River, on the right bank, the highest ground in the city, elevated some twenty or thirty feet above the waters of the Lake. The exceeding flatness of the city plat renders drainage difficult; the surface-water fills all excavations made, except in the dry or autumnal season of the year, not only in the city, but in all the country round about, so that cellars and root-houses cannot be sunk in the ground, but, if had at all, must be constructed above ground: this, however, is not altogether peculiar to the Lake Michigan District. The surface-water is a great impediment to the sinking of cellars in most parts of the State—so much so, that the majority of families are deprived of this most necessary convenience in the economy of house-keeping, to the great detriment of the public health. The humidity of the atmosphere is, of course, very great throughout the State, but probably in no locality so great as at Chicago, or within the Lake Michigan District. We have known the snow to fall six inches deep along the Lake shore, while the ground remained bare six or eight miles west. A large amount of rain falls during the year; there is much dull cloudy weather during the winter and spring seasons. The spring is always retarded by cold, and frequently deluged with rains, and at best greatly interspersed with the chilling "Mackinaw breezes," that are often felt thirty miles westwardly in the interior, and are characterized by great humidity and coldness. After hoping, and expecting, and waiting in vain for genial summer, fires are often found necessary to comfort as late as the fourth of July. From mid-summer on till November, the climate of this region is paradisiacal.

THE MILITARY TRACT.—This attractive region lies in the forks of the Illinois and Mississippi Rivers, and belongs to Middle Illinois, but presents some peculiarities in its topography worthy of a passing notice. The southern, narrow peninsula is an elevated spine of lime rock, along the Illinois, and a fine alluvial bottom along the Mississippi, six or eight miles broad. This elevated spine is of an acute triangular shape, and is covered with timber. Proceeding northwardly on this spine or elevated bluff, (not unfitly compared to the back bone and ribs of an immense animal,) the timber finally

begins to grow thin, and at last the prairies appear. The prairies are, at first, very broken, having rather the appearance of bald hills than prairies, and this very rolling character of country prevails throughout all the southern portion of the Military Tract, up to the Quincy and Rushville regions. The prairies are rolling, dry, and not so wide as to deter settlers from locating anywhere upon them; hence the population is more evenly spread over the counties in the Military Tract than elsewhere. The surface-water is less annoying, and the drainage of the country better; and really this region should be the healthiest portion of Illinois. It probably is, and yet the causes which produce the *nursing sore mouth* exist here; for we have met with inveterate cases of it in different localities within the limits of the Military Tract, which will be referred to in our analysis of cases.

METEORIC PHENOMENA.—Sanatory surveys, the object of which is, to point out and elucidate both the general and local causes of the endemic diseases of a country, which are always obscure, carefully investigate the topography and meteoric phenomena. Following this method, we proceed to take note of the prominent peculiarities or characteristics of the meteoric phenomena in Illinois, or the constitution of the seasons governing production—the abundance or scarcity of the crops and fruits from year to year, and the concurrent state of the public hygiene. Without attempting to be minute or technical, our aim will be to develop the leading facts that bear upon the etiology of the diseases, especially the *nursing sore mouth affection*, the subject of this essay.

We well remember the three most prominent evils that beset us in our early peregrinations over the prairies, and which constituted the chief drawback to our happiness, viz: high winds, wet prairies, and poor diet. We lost about twenty pounds avoirdupois of ourself during the first spring and summer—the first half year of our pilgrimage there—when of adipose or muscular tissue we had never a superabundance, and can, therefore, speak experimentally and feelingly of meteoric influences. Let the reader imagine himself a practitioner of medicine there, and called, in the month of March, to see a patient twenty-five miles in the country (a not

uncommon ride in those sparse settlements), his horse up to the fetlock in the mud every step when on land, and when in the water, in crossing sloughs and fording creeks, no matter how tall the steed, the rider's feet must be unstirruped and folded kimbo on his nag's sides, or his boots will fill with water; let him fancy Boreas let loose, and unobstructed by hill or copse, bestowing his best endeavors on him the whole distance; let him consider the amount of disintegration of the system, blown off in the shape of insensible perspiration during the day's ride, and consequent call for repletion; and then let him seat himself at the humble family board, and partake of their best bill of fare, viz.:—fried bacon and hot biscuits, raised with lard; coffee, of course, to wash it down. The potatoes had all been frosted during the severe winter, the cabbages too; of turnips, the season of sowing was so dry they did not come up; of fruits they had none, for it was but their second year in the country, and it is rare that a settler raises any fruit short of a residence of ten years there. Now, the reader can almost make oath that, whatever may be the nature of the acute attack of his patient—phlegmasial, malarial, typhoid, or puerperal—*meteorology* and its influence over the state of the vegetable supplies—the absence of vegetables in the dietary—has special agency as causation of this case, or aggravation, at least. This is not a solitary picture, but a general illustration of the state of things we encountered in the winter and spring of 1835, the second year of our meteorological and medical observations at Springfield, Illinois, the present seat of government of that rapidly progressive State.

The Rains and Snows that annually fall in Illinois, equal, if not exceed, the average fall in the same latitudes and elevations, anywhere in the United States.* The whole State is a low country, and but little snow generally lies upon the ground, during winter. In the winter of the "deep snow," 1831–32, when all the eastern harbors nearly were closed by ice, tradition says: "the snow was about two feet deep

*It appears by the late work of Richard H. Coolidge, M. D., of the U. S. Army, on *Meteorology*, that a *maximum* amount of rain falls in Central Illinois—an amount equal to that which falls in Florida, and along the Gulf Coast.

throughout Middle Illinois, and that winter lingered in the lap of May." We have seen the snow some fifteen or eighteen inches deep, two or three times, in the course of nearly twenty years, and the lingering disposition of winters of this character, has sometimes interfered with planting and sowing in the spring, and abridged the crops of the succeeding summer and autumn; still it is undeniable that the want of snow during the winter, as a protection to the wheat, is generally everywhere felt in the State.

There is this about the rains, and which bears immensely on the vegetable productions, and, no doubt, the general health of the country; "it never rains, but it pours." From midsummer, on through the maturing of the latter harvest, the sowing of turnips, and of wheat, there is frequently great and prolonged drought, with excessive heat. We remember one season, 1838, in which there was no rain in Middle Illinois, not even a shower, from July to January; and the heat was excessive in the months of July, August, and September. The crops, particularly potatoes, turnips, cabbages, etc., were very short. The drought was severe and extensive; the smaller rivers, always disposed to dry up in summer, in Illinois, went totally dry that summer, and in some localities, the live stock strayed off in search of water, and famished in great numbers.

Recurring back to the year 1834, the same hot, dry character of season prevailed, following a frosty, blighting spring. The succulent vegetable crops and fruits were nearly annihilated, and the staple productions, wheat and corn, cut short throughout the State. The following winter was rigorous, and the spring and summer of 1835, excessively wet, so much so, as greatly to embarrass and abridge farming and gardening operations. About midsummer, excessive heat again set in, and this was the most sickly season ever known in the State. There were hardly well persons enough to take care of the sick. We paid that spring, twelve dollars a barrel for flour, in the heart of that wheat-growing country, and two dollars a peck, (eight dollars a bushel) for potatoes, to plant in the garden. Seasons marked by the characteristics here given, have always, according to our observation, been at-

tended with great sickness and mortality; and we have been led to infer that there is an important connection between the state of the crops, or dietary of a country, and the state of the public health.

The reader should have personal observation of a thundergust, and experience one ten miles out on the prairies of Illinois, in order to fully appreciate the furious majesty of the scene, and understand the applicability of the adage "it never rains but it pours." The early spring not unfrequently, opens dry and beautiful, after the melting of the frosts and snows, and plowing, sowing, and planting, are opportunely accomplished; when, middle of May, the thundergust-rains set in, and not unfrequently keep the country deluged till midsummer; drowning out the hopes of all the flat prairie farmers, and washing out the labors of those, on the more rolling farms. We have seen acres of young corn washed out of the furrows, and whole fields of it submerged, and doomed to a yellow sickly abortion. Seasons of this character, are incompatible with the growing of a crop of potatoes, the great staple succulent vegetable in all parts, and it proverbially happens, that one extreme follows another, and that the drought of the latter part of the season prevents the growing of turnips, and the maturing of garden roots. Indeed, the growing of garden vegetables, in general, is much neglected by the early settlers; culture with the plow in the cornfield, is the great and all absorbing business of the planting season; for, according to the crop of corn, so is the amount of the marketable staple, pork, from the annual returns of which, the hard working yeomen rely to pay for their dry goods, groceries, etc., etc.; so that we may say, there never was, during the period of our observations, a full supply of succulent table vegetables raised, consumed, and put up for winter use; and in the cold, wet seasons, there was a most lamentable deficiency, and this scanty supply was often frosted, and still further abridged for the want of cellars and root-houses for their preservation.

An incident, not irrelevant, is here introduced, illustrative of the deluging summer rains that fall throughout this prairie country, and the waspish character of the creeks, that are often swollen by a single shower so as to be past fording. A little

dried up rivulet, even—nothing, in fact, but *a place for a creek*—a gorge between the lime-stone bluffs, with, at most, but a stagnant pool now and then along the deep holes and turns, to mark its course, will verily assume a most formidable character, often in a few hours, so as to jeopardize, if not destroy the life of whomsoever may attempt to ford its swollen tide. The locality or scene of the incident is as familiar to us as “the road to the mill;” we have often stepped the stream at the identical ford where the drowning occurred, without wetting the sole of our boot, and laid hold of the boughs of the water-birch the fair one clung to, that, like the boughs of a Pope’s willow, reach down their arms as if from heaven, to rescue such loveliness from the grave, or to mourn over it when consigned to an early tomb.

“*St. M * * * ’s, Pike County, Illinois, July. 4, 1834.*”

“When I wrote you from Altas, my most cherished friend, I had no idea that my next communication would contain intelligence of a distressing nature; but do not be alarmed, all danger is now at an end, and we are once more safe in our own home.

“Returning on Wednesday last, from Altas, we were so unfortunate as to enter the little creek about six miles distant from here, without having previously examined it sufficiently. My brother mistook one bank for another, and we were drifting with awful rapidity down the current before he discovered his error. We instantly found it to be a case of life and death. I had the good fortune to seize a limb as we were drifting down, and the horses struggling under me kept me from sinking, while I threw up my left hand and took a firm hold of the branch. The instant the horses were from under me, I sank deep beneath the surface, and immediately in the centre of the stream. I knew my only hope for life depended on the branch I had clung to, and I continued climbing up until, at last, after dipping under six or eight times, I succeeded in getting so far up the limb of the water-birch, that my head was above water. I instantly raised it, and seeing my brother and his wife near the shore, I allowed it to fall back again upon the surface till he should come to my assistance.

They thought I had drifted down past them, and my brother gave his wife a limb to cling to, whilst he swam off in search of me. I had a bonnet in the carriage, tied up in one of his dark silk handkerchiefs, which floating in the water, had the appearance of my dark bonnet, and his coat floating immediately after it, looked like my black dress.

"Deeply seated must that affection be, which clings to the stem around which its tendrils have twined, even when the icy finger of death has touched the brow of its unhappy sufferer. Will it be a satisfaction to you to know that my last earthly thoughts would have been yours? if it will be, then know that when nought but a slight limb intervened between me and eternity, and my prayers for our rescue were ascending to the throne of the Most High, the thought of you, my most dear friend, was far, far more prominent than of myself. I knew what my feelings would have been in a reversed situation, and you, O horror! torn from me by a violent death. I judged you by myself, for you then did I feel, of you did I think, and my prayers for you were as fervent as for ourselves.

"But brief time had I for reflection, for I heard my brother call out in the most heart-rending tones of real anguish, 'O my God! where is she? there—she is gone—I saw the last of her!' and seeing Elizabeth where I first saw her, knew he meant me. I called out loudly, 'here—here—here I am—I am safe.' 'Thank God,' he replied, and springing up the bank, was rushing with frantic haste to my rescue; his wife calling out that she was sinking—her strength had become so paralyzed, when he said 'that he had seen the last of me,' that she must have released her grasp and sank in a few minutes. My brother appeared not to see, hear, or understand anything but that I was really living, and he was flying past Elizabeth, to save me from what appeared instant death. Elizabeth being very near the shore, would have been in less danger, had she been less alarmed, but as it was I knew she must go unless he saved her that moment; I, therefore, called out to him in a firm tone of voice, for Heaven's sake to save her first, and then to come to my assistance. He plunged in, and after struggling some time, he finally gained the shore with her. The limb to which they were holding, was just far

enough to prevent him from catching hold of anything firm upon the bold shore, and the grass, and twigs would break the instant they were grasped. He was holding the limb with his right hand, and Elizabeth's arms were clasped about his waist; with his left hand he was endeavoring to grasp something ashore; her arms began at last to slip, and she told him she was going! 'then,' said he, throwing his left arm around her, 'we will go together.' 'For God's sake,' I called out, 'do not give up; remember you have me to save.' This seemed to restore him to recollection, and with an effort almost super-human, he turned nearly round, and caught a projecting root—they reached the shore in safety

"When he came to my assistance, I considered myself almost in eternity, for his frantic manner and incoherent words evidenced, fearfully, the total loss of his presence of mind. I tried to calm him, told him to pitch me the end of some one of his garments, wading in and laying hold of the body of the tree, which, after rushing about like a mad-man for some time, he finally did, and thanks to Almighty God, we are all safe. Both horses were drowned—one of them, poor thing, had his neck broken. Their heads being martingaled down, never rose above the surface of the water. The barouche was filled with articles for house-keeping; some have been found, and my brothers accompanied by a neighbor, have gone to-day in search of more. The loss I most regret is my reticule, for it contained the precious lock of hair, letters and poetry. I could have wept their loss whilst trembling on the brink of eternity in the midst of the stream, but that I knew the indulgence of such a feeling at that most awful moment, was little less than sinful, and I banished it as well as I could, but it adhered tenaciously, and I have offered up many a prayer for their recovery—but God's will be done, if I must loose them—be it so. We succeeded in reaching a house that night, and the next day arrived at home. * * * * *

M. L."

The torrents of rain continue to fall till after the summer solstice, and sometimes until the middle of July, when the flood-gates of the firmament are closed, heaven's artillery ceases, and the raining process is imperturbably suspended.

We question whether one of Espy's mammoth fires, or Vaughan's heaven-piercing lightning-rods, or Cheop's or Popocatapltl, even, would so galvanize the clouds as to induce further out-pourings.* But there is no occasion for more the rivers and creeks are all out of their banks, and extend from bluff to bluff; every upland pond-hole, marsh, lake, etc., is filled; and all the sink-holes and hollows along the bottoms are brimmed, and stored with fishes and reptiles, doomed soon to flap and flounder in the mud, and then to pass into their ultimate elements under solar heat; the great body of the summit-level country is in an equivocal terraqueous condition, and the soil and subsoil saturated to the blue clay. Another play of meteoric phenomena now presents. The unobstructed sun is busy through Leo, Virgo, and Libra, in restoring back to the air this flood of waters; and under powerful insolation, high temperature, and rapid evaporation, and consequent elimination of electricity by day, and a reversed process, powerful upward radiation, dew-sopping, and cooling, by night; and these debilitating, extreme impressions of the vital stimuli prolonged for weeks and months, everybody, nearly, falls sick. The full development of these evident causes of sickness is witnessed sometimes early in July, while an abundant and young vegetation is fresh and luxuriant, even before the mid-day of its perfection, and never a blight has touched it; but while in its rankness, superabundance, and noon-tide of life, it takes from the air the gases hurtful to man and animals, and returns oxygen or pure vital air, belying the hypothesis of malaria from vegetable decomposition,

*It appears from the most modern views of meteorologists, that water is contained in the air in solution, as salt is dissolved in water; that electricity is the chief agent by which it is suspended—the electricity being produced by the friction of the air against the earth's surface; that evaporation is effected at the expense of heat and electricity; and that the air, surcharged with vapor, being specifically lighter, rises above the lower stratum of the atmosphere, which becomes an insulating medium between the clouds and the earth. To produce rain a connection must be formed. Espy has proposed to effect this by fire; Vaughan by a rod of immense elevation; and by thus drawing off a charge of electricity from the higher strata, portions of the dissolved water must be precipitated in rain. This view explains the meteoric phenomena of the low flat regions under consideration, and why it is either very wet or very dry; and, also, the reason why mountainous regions are more uniformly rainy and misty. It has been even suggested by Prof. Vaughan, that the pyramids of Egypt built in order to the production of rain during the dry season.

unless it be thrown back upon the mould of preceding years, the constituents of the soil, which are now rather passing into new organic vegetable life again.

The Spring Frosts are sometimes severe, and occur late, blighting the fruits and crops extensively. Peaches, apricots, plums, and even apples, are rendered somewhat uncertain, owing to the severity and lateness of the spring frosts, incident to the sudden changes of temperature that occur after the showers set in, of which we have spoken. A frost occurred in the spring of 1834, about the middle of May, when the growing crops—corn, peas, beans, etc,—were several inches high, that killed, outright, all the crops, fruits, and tender vegetation, even the new growth of the forest twigs, a foot long, and foliage full grown. The forests presented an autumnal gloom; the leaves fell, and were succeeded by a new budding process, and the shooting forth of fresh foliage. The blighting influence of this frost in the spring of 1834, and the withering drought of the summer immediately succeeding, cutting off and abbreviating all the fruits and succulent vegetables of the country that year, has always appeared to us to hold a direct relation to the extremely sickly season that followed, viz.: the summer of 1835. Repeated coincidences of a like character have shown a relation like cause and effect to exist between short crops of vegetables and fruits, and sickly seasons.

The Autumnal Frosts are generally postponed until the summer crops are matured, and, therefore, do but little injury. Occasionally the crops are abbreviated by an early autumnal frost, but oftener by drought at this season. The native fruits are few, but the crab-apple and wild-plum are hardy, and generally abundant, though they are not sufficiently appreciated by the early settlers before orcharding can be cultivated, and the products help to protect the public health. The gooseberry and black currant are also natives, and when transplanted to gardens, and cultivated, are great bearers, and the fruits exceedingly fine; but their cultivation is also neglected. There is no disposable force to be spared during the rail-mauling and prairie-breaking years of a settler's efforts for a wide farm, and consequently fruit culture and gardening are

neglected, and the health of every family is thereby jeopardized.

The proposed limits of this essay will not allow us to discuss in full all points connected with the topography of this great, beautiful, rich, and wonderful State. Its geological formations, coal and other mineral deposits; its fauna, and the rich profusion of its native plants, must be passed over. All these are matters of interest to the lovers of natural science, but have little bearing on the subject of our Inquiry, which is strictly medical.

CHAPTER III.

ETIOLOGICAL DEDUCTIONS—MALARIA.

THE foregoing topographical sketch, presenting an outline of the physical features, meteoric phenomena, constitution of the seasons, state of the crops and fruits, dietary, habitations and modes of life of the people, general and local climates—in a word, the sources of the *endemic influences* or causation of disease in Illinois, the field of our observation, where we were called year after year to treat the vernal waves of the nursing sore mouth affection, will enable our readers, we think, to catch a glimpse of the leading element in the etiology of this anomalous disease, viz.: *defective alimentation, or impaired nutrition*. Without fear of successful contradiction, from nearly twenty years close observation, we charge the remote cause of the disease to this source, in all cases. The coöperating and exciting causes are numerous, of course, but the inlaying of the latent morbid diathesis depends on defective or abridged nourishment. The disease is a lesion of nutrition. Its vernal waves follow blights and scarcity as pestilence follows famine; and yet it often results from restrictions in diet, either under medical direction or self-imposed,

in families where there is plenty. The thousands of ways wherein the natural laws of diet are habitually abused, either from gluttony, ignorance, or want, cannot be specified, and they all tend to induce a latent, accumulative morbid condition of scorbutic type, ready to be lashed into activity by thermometric, emotional, and other exciting causes.

It is contended by Dr. Drake in his work on the "Diseases of the Interior Valley," that the meteoric causes of disease, as summer heat and vicissitudes of the weather, never inlay a latent, morbid diathesis of accumulative tendency. This opinion is maintained in arguing in favor of the hypothesis of a substantive malaria, which he, with other writers, holds to be accumulative in its latent incubation in the human system—the cause of the so-called malarious fevers. Natural causes being held to be inadequate to produce the fevers, the hypothesis of malaria is assumed to be negatively proved by its effects—the fevers! If this be inductive reasoning, we are unable to see it. Much more philosophic is the following from Dr. Drake's work, p. 451. "The students of Lane Theological Seminary, near Cincinnati, left to decide on their diet, had nearly abjured animal food, and many subsisted on bread and molasses, or other articles of a like kind, at the same time repudiating tea and coffee. Their habits were cleanly and their lodgings not crowded. Now the outbreak of fever in this little community, independently of known contagion, sustains the conclusion that deficient nourishment is one of its causes."

Verily in the absence of contagion, filth and foul air, in the above illustration, it appears to us that "deficient nourishment" is proved to be the *sole cause* of the outbreak of the fever, that is, *sole remote cause*, (the season of the year is not specified, so that we cannot judge what the *exciting* cause or causes may have been); and if deficient nourishment, or a one kind of diet, as bread and molasses, will thus inlay and accumulate typhus (we presume this fever to have been typhus as contagion is spoken of), why not bilious or malarious fever as well, the meteoric exciting causes of summer heat, etc., favoring its development? This looks much more rational to us, and seems infinitely more probable than that it is produced

by a malaria. The enlarged livers of starving geese artificially exposed to high temperature illustrates this view—a scorbutic tumefaction and softening of the viscera as is often seen in malarious fevers.

Ancient philosophers and physicians, and Hippocrates among the number, relying more on observation than books; reasoning from the facts before them, ascribed the cause of pestilence to extraordinary seasons, in the main; and they made no distinction in the cause of the different epidemic forms of disease: all were ascribed to the same natural common causes. We question whether the moderns have advanced much in etiology.

Possibly the advocates of malaria may consider their cause greatly strengthened by our topographical sketch of Illinois, and see the evidences of a substantive miasm so plainly on the rich, odorous, reeking river bottoms, that it may seem to them they can almost cut it with a knife; can all but see it in the shape of mephitic, bilifacious fumes gluing and gumming up the portals of life of its unsuspecting victims, coursing their veins, implanting its leaven-like or catalytic essence in their livers and spleens, and by zymotically changing the vital processes of secretion and assimilation into a kind of fermentative eremacausis, have things all its own way; perniciously converting each molicular, parenchymatous particle, into a living, moving, growing, atomic animalcule, whose personal importance though individually beneath the powers of the microscope, is nothing the less evident when taken collectively or massively, for spleens which normally weighed only two pounds now weigh ten, and livers and gall-bladders in proportion. It is analogically evident that the assumed miasmata must be animalculæ, for the heat and slime of the bottoms force into existence, nolens volens, the products of decay, which like old cheese quicken with a sort of putrefactive vitality, and can surely be smelt if not seen, and can easily be imagined to take wing by day and go to roost at night, seeking the interior of the cabins in order to keep warm and dry like other well bred fowls and insects: furthermore the mosquitoes, gnats, flies, devils-needles, toads, turtles and turkey-buzzards are as abundant as the insect swarms

that an offended God sent upon the hosts under the hard-hearted Pharaoh, therefore the miasmata must be of animal character or nature—a sort of animal steam, or invisible quintessence of *suspected* animal life, well enough proved by its odor and poisonous effects, the fevers, as also by its being killed by the frosts, though never yet isolated or seen by mortal eye aided by microscope!

Again, the same hot-house effect is apparent in the vegetable world as in the animal, and there are microscopic plants as well as animals—parasitical, ergotizing fungi, that revel in the milky juices of the berry, the very heart's blood of the vegetable kingdom, and as the ponds are being mildewed over with green fungi, the grains and grasses ergotized, and the sporidia are buoyant enough to be wafted abroad in the air, it strikes another class of sophists that there may be, peradventure, a sort of secret coalition going on between these invisible sporidia and the vital processes; a kind of runaway match between the vegetable and animal cells, or a cryptogamous union of animal and vegetable life; in other words, those parasitical fungi are ergotizing the livers, lungs, hearts, etc., of the squatters who have invaded their abodes—growing liverwort, lungwort, heartsease, or rather disease, etc. The truth is, there are so many arguments to sustain both of these very plausible and ingenious, not to say probable theories, to be gathered from the Illinois bottoms, that the foundations of malaria will be considered strengthened and extended by our argument no doubt, and had we not in our chapter and topography disclaimed faith in these hypothetical dogmas altogether, both parties would claim us, we feel confident, and bestow most cordial and fraternal eulogy, if not vote us a silver service for our original views. There seems to be an opened-mouthed readiness of anaconda capacity to swallow monstrous absurdities, which block up the way and leave little room for the ingress of truth.

After this admission that the topography of Illinois is favorable for the production of malaria on either the animalcular or cryptogamous hypothesis, and the support given the two theories by us, we claim to have sufficiently propitiated the faithful in malarial orthodoxy to warrant us in offering a new

view, without giving offence, to wit: that Illinois is also, topographically very favorable for the development of *scorbutus* in the natural way in which that is produced, whether by the use of salted fish and meats, especially pork, or by the lack of vegetables and fruits; or from cold damp air; or cold winters and wet springs; or droughts, frosts and blights; or intense and prolonged summer heats and humidity; or all these causes united with an abridgment of suitable food. And it is proper also, in this connection to note that it is said the majority of the victims of land scurvy are women. Dr. Good, in treating of land scurvy says, the subjects of it are "principally women." This strengthens our deductions as to the etiology and pathology of the nursing sore mouth affection so prevalent in Illinois, if it does not afford a clue to the cause of the great amount of malarial disease or general sickness. For it is notoriously true that the women of Illinois are subjected to the debilitating effects of not only rapid breeding and nursing, but also poor diet, damp, cold cabins, want of servants, home-sickness, agues and fevers, dilapidated health and broken spirits.

Lind says, "They who live in swampy inland soils, near morasses, or encompassed with thick woods and forests, or in countries subject to inundations from lakes or rivers, or where there are corrupted, stagnant waters, where the sun has not sufficient influence to elevate their vapors to a proper height above the earth, being continually surrounded with unwholesome fogs and mists, are subject both to scurvies and agues. We may generally observe them to have a pale wan color, and scorbutic spots on the skin; to be of a dull, inactive disposition; their scorbutic discolored countenances bespeaking the place of their abode; whereas, those who inhabit the mountains, or more dry and healthful places, are remarked to be agile, active, well colored, and long-lived. Those who live in the higher apartments of a house, are observed to be less liable to those disorders, than others who live on the ground floors of the same houses. The poorer sort of people, who live in damp vaults and cellars under ground, are most afflicted with symptoms truly scorbutic; as are likewise they who are confined in dungeons, and damp unwholesome prisons.

We see it most common among the poorer sort of people in the before-mentioned situations, who feed much on dried or salt fish and flesh, and the unfermented farinas, without using green vegetables and fruits. The lazy and indolent, and those of a sedentary life, are most subject to it. Those that are of a cheerful and contented disposition, are less liable to it, than others of a discontented and melancholy mind. They who are much exhausted and weakened by preceding fevers, and other sickness, or those who have unsound and obstructed viscera, as after agues of the autumnal kind, are apt, by the use of improper diet, to become scorbutic."—*Treatise on the Scurvy*, p. 91

Thus the causes and the coöperating causes of scurvy, are found by our researches, to exist to an eminent degree in Illinois, and to fall with unerring certainty and leaden influence, in the pathway of breeding and nursing women. This much conceded, these facts established, we shall enter no special plea in favor of the existence of any other remarkable cause or causes of disease, further than exist elsewhere and everywhere; either constitutionally, inherent, or dependent, on meteoric, or atmospheric vicissitudes. The truth is, diseases must have for their causes, principles as extensive as their effects; or in other words, there must be an adequate cause. If defective alimentation is not adequate to the production of the nursing sore mouth affection—if partial and prolonged starvation is inadequate to produce debility, anæmia, and a general breaking down of the powers of life, with laxity of the tissues, and local ulcerations, why, away with it—discard it. But, if it be adequate to produce these effects—if these are *thenatural consequences*—retain it as the only common-sense view to be taken of the matter. If "deficient nourishment" is adequate to the production of typhus fever, as appears above, where shall we limit its power for evil? What form of disease may it not produce? May not the great waves of extraordinary sickness or epidemics, malarial or otherwise, depend upon extraordinary seasons, years of blight, and a general abridgment of wholesome food? May not the ancients have been nearer the truth, in ascribing pestilence to extraordinary seasons, than the moderns, to a hypothetical malaria, or poi-

soned air? We think so. Nor can we subscribe to the doctrine of the more pious masses in all ages, that extraordinary sickness comes as an expression of Divine displeasure, or the vengeance of God.

As for the air, we are quite sure that a most remarkable salubrity is maintained in this element, the year round in Illinois, uncontaminated by either animal or vegetable decomposition; for a succession of flowers literally carpets the State from May to October, till frost sears the luxuriant verdure, when the fires set in and sweep over the whole prairie country, and the rank grass and herbage of the bottoms, the alleged strong-holds of malaria, afford the hottest fires, and yield the greatest amount of purifying ashes; the country is an open champaign plain, and a healthful breeze is always playing, as at sea, so, that if there were any pestilential miasms generated in this or that locality, from vegetable or animal decomposition, they would be instantly scattered to the four winds of heaven, and so diluted with an admixture of pure oxygen, fresh from the laboratory of a most healthful vegetation, as to pass harmlessly over every man, woman, or tender infant in the State, were each focus of production equal to the combined capacity of a thousand first class chemical laboratories and the product as deleterious, as the choak-damp, or even sulphuretted hydrogen gas. One of those steady-pressing summer and autumn "south-westerns," that incline the very trees to lean permanently to the northeast, would waft all the miasm out of the State in a single day, and land it in the Polar Seas, or elevate it into the upper regions of the air, to shine by night with phosphorescent putridity, a beautiful blushing Aurora Borealis.

Nor is there contamination of the air from telluric emanations or mephitic exhalations in our judgment, although this opinion is entertained by many citizens. We knew an intelligent farmer who not only believed it, but who had actually fenced round the locality from whence he contended the putrid poison oozed, in order to prevent men and cattle from encountering it! But there is no proof whatever of any poisons being exhaled from the ground. The oxides or salts of the usual bases found in the most fertile soils exist in great abundance,

such as lime, potash, soda, alum, etc., etc., indeed there is every reason to believe that Nature's most perfect standard is attained as regards the constituents of the soil, and all the emanations or exhalations, we have no doubt, are as perfectly harmless as they were in the garden of Eden. The truth is there are no metals, such as arsenic, mercury, and the like, known to be poisonous, and there are no volcanic heats in the earth to volatilize them if they were there; besides, it is the business of oxygen to oxidize all offending or noxious materials whether in the earth, air, or water, and the office of the vegetable kingdom to absorb the carbonic acid thrown into the air by combustion, respiration, etc.

Nor is the cause of the pestilence, either, in the water. The waters are pure, save containing some of the soluble salts of potash, lime, etc., of the soil, before spoken of. The surface-water is all rain-water, and therefore as pure as distilled water, and the well-water is the same filtered through clay and sand. There are many persons, however, who think that the cause of all the sickness exists in the water, and that spring-water is particularly deleterious. This prejudice arises probably, from the fact that the most desolating mortality visited the early colonists who sought locations where water was afforded to hand by springs. They did not know that living upon bread and meat mainly, for months and months, would certainly destroy them, though their waters were distilled from heaven, and as pure as nectar. So far as Nature has done her work, then, in the soil, the air, the water, the vegetation, the animal kingdom, we believe all is right, and we must look to some other sources and circumstances for the cause or causes of the pestilences that are the scourges of new countries.

Comfortable or uncomfortable habitations have great influence. The early settlers of new countries are the poorer classes mainly. They have been reared without knowing the luxury of a comfortable habitation. When they emigrate they construct rude, cheap, temporary cabins, without cellars, or windows save perhaps a small opening opposite the door capable of being closed by a bit of a board. The family all sleep in this one room on the ground floor, and cook and eat

in it also. This rude cabin frequently serves the family for a residence for ten years. There is no fault to be found, in the main, with the building sites; they are generally along the margins of the rolling prairies, and if the cabins had second story chambers for sleeping apartments, and cellars underneath, much sickness would be avoided. The northern and eastern margins of the groves were noticed as being the more healthy locations; doubtless because they afford more shade, or greater protection from solar heat. A residence within a grove is still greater protection. It is heated less by day and cooled less by night, and these sudden vicissitudes are the main exciting causes of the fevers. A residence on the bottoms is always favorable to health in very *wet* seasons; the temperature of the surrounding waters is not elevated by solar heat, and there is none to be radiated at night—the temperature of day and night is equalized. A residence on the unbroken prairie illustrates the same principle: we have known immigrants thus situated to escape sickness for two years, but on breaking up a large extent of the prairie surrounding the cabin, every member of the household sickened the third summer—the rank grass absorbs little heat by day, and the upward radiation is therefore but very moderate at night; but when the black friable soil is turned up, it absorbs heat by day so as to become burning to the bare feet, and radiates it with great facility at night, black surfaces being good radiators. A bottom residence thus surrounded with tilled lands is a-lazar-house in a dry season. It is an oven by day and a cold cellar by night; a chill and a fever every twenty-four hours regularly; and there is no care taken to guard against the evil—it is a luxury to be exposed to the night air.

It is only from careful observation and a review of all the circumstances surrounding the persons falling sick, that we can form any just conclusions as to the causes of the sickness, and then they are so obscure as nearly to elude our search. Old doctrines and dogmas of the schools, explaining the causes of disease on hypothetical foundations, as malaria, epidemic influence, endemic influence, etc., cloud the vision and stand in the medical philosopher's way. It is easier to follow in the high-way of error than to search and scan the natural

laws and develop truth by inductive reasoning. It is only when the causes of disease are very prominent and stand out in bold relief, as they did in the character and constitution of the extraordinary seasons of 1834 and 1835, a most desolating epidemic following a dreadful blight and drought that destroyed the fruits and vegetables, and sickness setting in under remarkable meteoric phenomena, to wit: extreme heat and humidity, that the mind can hope to seize hold of the leading facts as data and to trace cause and effect, and weave a reasonable argument that shall explain the causes of disease satisfactorily and convincingly to the minds of others.

Succinctly, then, what are the facts before us? why, as follows: a blighting frost in the spring of 1834, cut off all the summer fruits, great and small; a scorching summer drought followed, that withered vegetation and nearly annihilated the succulent vegetable crops; and a whole people were left for a twelvemonth on a bread and meat dietary, mainly. The spring and summer of 1835 were excessively wet, and the scorbutic diathesis pervaded the public, (we speak from observation) everybody was under its weakening influence, more or less. Early in July the heat, as well as the prevailing humidity, became excessive, and the heat continued through the summer, the fall becoming dry. Under these circumstances the whole body politic nearly, men, women and children, were prostrated with intermittent, remittent, pernicious and continued bilious fevers, diarrhoea, dysentery, nursing sore mouth, cholera infantum, etc.—summer complaints of every character and grade of severity. Three or four times in a cycle of twenty years we saw this fatal drama repeated: similar meteoric phenomena, or extraordinary seasons, were followed by similar results. Now what were the causes of the epidemics? We discard the doctrine of malaria because there is no proof of there being any such product of vegetable decomposition, besides, the fevers set in while vegetation is young and fresh. The dogma is but an hypothesis, and therefore unworthy of belief. Natural causes are sufficient to explain the phenomena. Extreme impressions of the natural vital stimuli produced the whole mischief. Extreme meteoric manifestations, or extraordinary seasons cut short the supplies;

extreme deficiency of alimentation or want of food of proper quality and proper kind, inlaid the scorbutic diathesis; and extreme summer heat operating on this latent morbid condition excited or developed active diseases. Nothing is plainer to us than that deficient and defective alimentation, a partial famine in other words, inlaid a scorbutic taint generally, or was the remote cause of the mixed up, intercurrent, fatal epidemics of 1835. The inordinate application of summer heat to systems thus debilitated by latent scorbutus; or rather we should say, excessive insolation by day and excessive cooling by night, and of course excessive electrical disturbance of the nervous systems of persons, explain to us, the rational causes of the development of the epidemics, without any occasion for a specific miasm. Besides, if we admit a miasm as the specific cause of fevers of the ague type, we must also admit one for diarrhoea, dysentery, nursing sore mouth, cholera infantum, and every other epidemic form of disease that is cognate with the fevers.

Deity has not constructed this round world in such a way that it can pursue its annual circuit round the sun, presenting the beautiful economy of the seasons, without subjecting the latitudes on either hand, to extreme thermometrical changes. Man, physiologically, is adapted to a medium impression of heat, of about 65° F., and in his digestive economy, is as essentially omnivorous, as the bullock is herbivorous. A reasonable range, however, both in the natural law of calorification, as well as alimentation, is compatible with health; but great and sudden changes in either, and extreme and prolonged impressions deviating from the standard for health, are very pernicious, and soon induce a pathological condition. So of air, light, and electricity; there is a medium standard where the impressions are favorable to health, and beyond which they favor disease. Organization, age, sex, temperament, complexion, habits, diet, season of the year, state of health, etc. etc. etc., are modifying circumstances to shape the character of the disease. One system or class of persons, will take on ague, another, pernicious fever, a third, dysentery, a fourth, rheumatism, a fifth, neuralgia, and so on; while all will show the scorbutic impress—the scorbutic palor and de-

bility, and the nervous disturbances and sanguiferous tumult of fever; and the most common scorbutic form, or remittent type of fever, will predominate. Pregnant and nursing women will have puerperal anæmia, a variety of land scurvy; scarlatina, measles, and whooping cough, will assume an aggravated character in the winter and spring, and cholera infantum, in summer. None but the most organically perfect, of hale constitution, will escape the sickness. Cause and effect are apparent, and the causes of disease are thus seen to be known natural causes, or the effects of extreme impressions of the natural vital stimuli—food, air, and heat. Pestilence is thus explained on rational principles, as resulting from adequate natural causes. When adequate natural causes are shown to exist, why look for others? Why substitute the hypothesis of a malaria, when the fevers are susceptible of explanation on principles consonant with reason and observation? If a floating malaria or poisonous gas could be detected in appreciable quantity, in the atmosphere of every locality, prior to the breaking out of pestilence, there would be reasonable foundation for ascribing the fevers to it; but it should of right be isolated, collected, and its physiological effects tested before the doctrine should be received. This has never been done. It is the delight of the Creator to see earth, air, and water, teem with life; all beings to fill their respective spheres, and to die by *natural causes*, and man is in the category. There is no precedent known in the two thousand years' history of medicine, of the diffusion of a subtle poison in the air, the supposed source or cause of epidemics. Natural causes are adequate to their production: this should settle the matter. The "*to theion*"—an occult poison in the air, something divine, or beyond human investigation, admitted by Hippocrates, and some other ancient physicians, when the relation of extraordinary seasons was not apparent, can be wholly dispensed with, and also the *malaria* of the moderns. God, in his government has never breathed an occult, inscrutable poison into the air, assassinating his creatures indiscriminately, men, women, and children. It is irreconcilable with the goodness of God. But admit an infraction of a great natural law, by everybody, for months, as must happen in a

partial famine, and the reason why men, women, and children perish by sickness, when hot weather and great, and sudden vicissitudes occur, is obvious. God rules by general laws, and these not beyond man's comprehension. Malarious fevers occur at sea, are produced on ship-board, where there can be no marsh malaria. Also in arid deserts, where no vegetable or animal decomposition is going on. Also in the cool, dry mountains of California, where never a marsh or lake existed, amid pine groves and rapid running streams, where no rain falls for six months of the year, and no vegetation, comparatively, is produced, subject to decay. One such example is fatal to the hypothesis of malaria, and a dozen may be cited. The true doctrine was undoubtedly taught by Etius, an eminent physician of the fifth century, to wit:—that epidemics were the consequence of *bad food, want of food, grief, sloth, and abundance succeeding to want*—developed by a hot, damp state of the weather: and, that if a person takes moderate exercise, and is temperate and regular in diet, he escapes. This is both truthful and rational, and is conformable to our experience in the main. A hot, dry state of weather, however, will develop an epidemic after want of food, grief, etc; have inlaid it, as well as a hot, damp condition. In 1797, history records, that the bilious remittent fever, finally becoming so aggravated as to be called the yellow fever became epidemic in Baltimore, under a hot, dry state of weather. A very damp state of the weather set in, and continued two weeks, during which time there were no new cases of yellow fever developed, but all was changed to dysentery, the epidemic still on the increase. At the end of two weeks, the weather became hot and dry again, and the dysentery ceased, and yellow fever again resumed its sway.

“Typhoid fever often supervenes in well marked regular bilious remittent fever; in other instances the symptoms of the two diseases are so interfused as to render the distinction as to which form of fever predominates, a matter of difficulty, if not impossibility.”

“The interoccurrence of cholera and typhus, was well marked in cases occurring this year, 1851, in St. Mary's Orphan Asylum.”

"The epidemic [1851] partook of the nature of cholera, dysentery, and scorbutus. In the early part of its reign it partook of the nature of cholera, there being profuse serous discharges. As the warm summer months set in, it partook of the nature of malignant dysentery. Hemorrhage from the bowels was always in the ascendant in the last stage. In many cases a scorbutic appearance of the parts within the mouth and throat was presented, the gums becoming distended, spongy, and separated from the teeth, with dusky redness of the fauces and parynx, and profuse hemorrhage from these tissues." (*Reyburn's Report in Transactions of the A. M. Association, on Diseases of Illinois and Iowa, for 1855*).

From a survey of all the facts before us, then, it appears to us that Illinois and all other newly settled countries are rendered sickly by the circumstances and accidents that throw the inhabitants upon *bad and unsuitable food*, inlaying the scorbutic diathesis; which condition has been heretofore overlooked in accounting for the summer epidemics; the whole difficulty having been ascribed to *malaria*. Ignorance of knowing how to live is a fruitful cause of sickness. Many years must elapse before fruits can be cultivated plentifully. Vinegar and pickles are generally eschewed. Pork, bread, and coffee are often the main articles of diet for months and months together. The vicissitudes of the weather and extreme heat are the exciting causes. The alternations of intense insolation by day and rapid cooling by upward radiation at night, subject all to the prototype phenomena and periodicity of fever and ague. These impressions or alternating vicissitudes of temperature are extraordinarily great on the low, confined, porous, black, alluvial Illinois bottoms, especially when under cultivation. They are bake-ovens from mid-day till evening, and cold cellars from mid-night till morning. So of the rice plantations of Georgia; the streets and alleys of New Orleans; Pontine marshes; and African rivers. None but negroes, who can radiate heat like a black tea-pot can stand it. Nor can they escape sickness if a previous faulty dietary has inlaid a scorbutic taint. We differ from Dr. Drake; we think these extreme meteoric impressions, these

intense diurnal alternations of heating and cooling, drying and dewing, that operate on persons in the Illinois bottoms, and all other malarious localities, are sufficiently disturbing influences of themselves to derange secretion, impair the appetite and digestion, and prove the first link in the interruption of the function of nutrition, and the inlaying of the scorbutic diathesis. The almost certain attack of unacclimated visitors to such localities warrants this inference. A whole boat's crew have contracted fever and perished, so history records, from sleeping one night ashore, on an African river. We judge *they* must have been all rendered scorbutic by the bad dietary on the voyage before landing. The shock of sleeping ashore, or vicissitude of temperature was but the developing cause we think. Still, the slower attacks of unacclimated persons visiting New Orleans, and other southern ports, in accredited health, rather tend to sustain the views that the extreme impressions of the meteoric vital stimuli there encountered begin the work of impairing the health—elimination is impeded through innervation of the overtaken secretory apparatus. The nutritive function is thus attacked at the other end of the chain. Effete matter is locked in. Assimilation is obstructed and cannot go on. Digestion is at a stand. The appetite gradually fails until it is wholly gone. The scorbutic taint is begun to be inlaid. Hence, as Lind says, "they who reside in swampy inland soils; near morasses; or in countries subject to inundations from lakes or rivers; etc., are subject both to scurvies and agues." It appears to us, that there are known causes of disturbance enough present, in all such localities, to account for the aggravated forms of disease, without resorting to the hypothesis of marsh malaria; certainly there are after extraordinary seasons of blight. Nobody can escape scorbutus then. An epidemic is a matter of course. We have abundance of evidence derived from observation to satisfy us that defective alimentation, co-operating with the meteoric endemic influences named, inlay the scorbutic taint deeply, and that it is a hidden and overlooked element in the causation of the severe bilious fever epidemics of Illinois. We infer it to be the predisposing cause of all malarious fevers—of the wide-spread prevalence,

aggravation and malignancy of bilious fever epidemics during certain years, and the vast amount of general sickness that then prevails.

The difficulties of malaria are too numerous to mention, but we will cite the reader to one.

A healthy New Englander goes to Illinois and remains one summer, returns home in the fall, passes through the winter without anything remarkable occurring, but when warm, spring weather comes on, the individual sickens with malarious fever—has a vernal ague. Now the assumption is that a positive poison, *malaria*, was received into the system in Illinois, which incubated till spring, and then developed its peculiar effects.

How absurd the doctrine would be, even if we had proof of the existence of a poisonous *malaria*, or gas—had it isolated and bottled. The retention of a known poison so long in the human system, contravenes the conservative laws of physiology which eject and eliminate with dispatch all poisonous substances from the body; and is contrary to every known example in toxicology. But when we consider that the poison is only *supposed* to exist, to what an impoverished medical philosophy we are wedded! Shade of Hippocrates—shade of Etius, save and defend us from such puerile nonsense.

Our explanation of the matter is this. The healthy New Englander, by a summer residence in Illinois, contracts latent scorbutus, which often lies years in the system; in other words, defective alimentation and the coöperating endemic climate inlay the scorbutic diathesis, which lies latent till spring. Opening hot weather excites a vernal attack of active disease.

Now if we are asked why it is developed in the form of an ague and not typhus fever? We reply as before observed, that this depends on the accidents of surrounding conditions and circumstances, such as constitution, temperament, age, sex, diet, habits, locality, season of the year, degree and stage of scorbutic taint, etc., etc., as well as the meteoric conditions present, or exciting causes.

It has been remarked by the older authors on scurvy, and

Bisset in particular, that fevers, are apt to supervene when scurvy, as an epidemic, is beginning, and declining. *The degree and stage of the latent taint* have great influence in shaping the form of *active disease*. In illustration: the extraordinary heat and blight of 1854, inlaid the scorbutic taint generally throughout the western States, which manifested itself extensively in the spring of 1855.

"The Vincennes Gazette of the 2d inst., mentions that the scurvy prevails to a considerable extent in several neighborhoods along the line of the railroad. It is of a mild type, and easily checked. It is supposed that the disease has been produced from a too constant use of meat diet, owing to the absence of vegetable food." (*Cincinnati Commercial*, April, 1855).

This state of things existed not only about Vincennes, in Indiana, but throughout the western States, and indeed throughout the United States, in the spring of 1855. The summer of '55 was exceedingly favorable for the growth of vegetables and fruits; they were abundant, cheap, and of excellent quality, and those most favorably circumstanced were healed. But what happened in the autumn of 1855, the following extracts will show:

"*The Ague Epidemic*.—The Indiana Daily Journal of the 3d inst., says:—'We have no doubt there is more sickness in Indiana this fall than ever before. Not of a fatal character, it is true, but distressing and expensive. The chills have come, like the locusts in Utah, devouring the accumulated health of many summers. Those who have boasted themselves chill-proof, have shaken like a coward entering a battle, and many a robust constitution has felt its clammy coldness overspreading them like a November drizzle. From every quarter of the State we hear the grantings of back-aching, side-racked patients, and the combined fevers of all the afflicted would make a heat sufficient to set up a young volcano.'

"The Danville Advertiser says:—'There is more sickness in our county at this time than there has been in many years. The same report reaches us from all parts of the State. It does not appear to be of a fatal type, however.'

"The Fort Wayne Times says:—'For many years this North-

ern region has not suffered as during this. The mortality has not been great, but affliction with fever and chills has been extensive, as is evidenced by the multitude of pale faces.'

"The Portland (Jay county) Journal says: —'There is at this time more 'chill and fever' throughout this county than ever known before; why this is so we cannot tell, unless it be the effect of the great amount of rain which fell during the forepart of the season.'

"The chills are not confined to Indiana, but are prevalent throughout the country. The immense amount of water that has made this a continent of mud for months past, and the tropical luxuriance of vegetation, account for the unhealthiness of the country." (*Cincinnati Commercial of October, 1855*).

The "ague epidemic" prevailed at the same time in the city of Philadelphia; and the yellow fever in Norfolk and Portsmouth. There was some general cause for all this; and does not our explanation unfold it? mud and water, and vegetation do not abound in Philadelphia.

Why a bilious continued fever, or a bilious remittent fever, or a pernicious fever, instead of an ague and fever, (all held to be malarious fevers) is ever developed, depends on conditions not fully understood, but still we are able, measurably, to appreciate the conditions, such as we have named. Why the acute attack should be developed in one individual, then, as an ague, in another as a rheumatism, in a third neuralgia, a fourth typhoid pneumonia, a fifth puerperal fever, a sixth nursing sore mouth, a seventh dysentery, an eighth continued fever, a ninth erysipelas, a tenth insanity, and so on, is owing to the surrounding conditions and circumstances of each locality and case; the puerperal condition would naturally enough take on puerperal peritonitis; under lactation the nursing sore mouth would as naturally set in; and so on. There is nothing repugnant to sound sense in this view. It is sustained by the analogy of the widely differing forms of the malarious fevers. And it is surely as reasonable of belief as the supervention of typhoid fever on bilious fever; of yellow fever on bilious remittent fever; of dysentery on yellow fever, and vice versa. Indeed the intercurrent of these

formidable and malignant diseases, and of cholera and typhus; and cholera, dysentery and scorbutus, examples of which we have given, prove this to be the only rational and philosophic view—and we believe the truthful, scientific, and only possible explanation or rationale of the matter.

POSTSCRIPT.—We are happy to know that we do not stand alone in ignoring out and out the mischievous hypothesis of malaria. Dr. Black of Ohio, and Dr. Gayley, and Dr. Bell of Philadelphia, have each protested against this Italian absurdity of Lancisci. After our paper was written, Dr. Black's partially coinciding views came to hand in the March No. of the New York Medical Journal, 1854, from the spirit of which our paper received retouches. Since the manuscript was put in the printer's hands, our attention has been called to Dr. Gayley's able inaugural thesis, which demolishes the hypothesis. It is to be found in the American Journal of the Medical Sciences, Jan. 1849. It appears, through a note at the close of said paper, that Dr. Bell had previously, but unknown to the author, published similar views in said Journal, No. not given.

Now Dr. Black and Dr. Gayley, both, fairly refute and upset, in our judgment, the received doctrines of malaria. They show conclusively, that malarious fevers occur where marsh effluvia never existed, and never of possibility could be present; and Dr. Gayley cites, Dr. Wood, and, other authors who bear testimony to the same undeniable fact. One example and the hypothesis falls.

The heating and cooling—the sudden alternations of temperature between day and night, or the endemic, meteoric vicissitudes, of which we have treated, are held by both Drs. Gayley and Black to be the cause of the so called malarious fevers, but their rationale differs from ours. Our views coincide this far; we say they are the secondary, *exciting*, or developing cause, after an abridgement of the vital stimulus of nutrition, which we hold to be the *remote* cause, has inlaid some degree of the scorbutic taint. And we admit further that, in some cases, under some circumstances, these sudden vicissitudes in the meteoric class of vital stimulants, appear

to *first* conspire, at all events coöperate to impair the nutritive process, the *sine qua non* in all malarious diseases.

Our paper by no means furnishes all the proof of the truth of this new doctrine. We have hardly drawn an illustration from therapeutics. Why does common salt cure ague? Because it re-vivifies the nutritive function and is indispensable to health, in its elements. So of acids; so of the potash salts. They are our most valuable antiscorbutics, either revivifying the old basic elements in the road of excretion, or supplying new elements to the tissues. Even the arsenite of potash is not rendered too vile by its poisonous association. Quinine in small doses lifts up the depressed nutritive function, and in heroic doses eliminates by sweat the effete matters that dam up the waste-gates of nutrition. Our philosophy affords the *rationale* of these every-day truths; familiar, to be sure, as house hold words, but heretofore mysterious and inexplicable. The *sympathy* of the solidists, the *change of the fluids* of the humoralists, the *similia similibus* of the homœopathists, the *contrariety* of the antipathists, and the *counter irritation and heterogeneity* of the alopahists never answered these questions. Our view shows *how* remedies operate, and how both the fluids and solids are healed—makes a common sense matter of disease and the art of healing; simple as truth ever is when seen and understood. But we must not anticipate matters, the discussion of which properly belongs to the last part of this work, our essay on scorbutus.

CHAPTER IV.

CASES AND DEDUCTIONS.

WHETHER the reader of the foregoing etiological deductions, has perused them to cavil at the substitute offered for the malarial hypothesis, or more sensible, to endorse it, is not a matter of any importance, so far as the nursing sore mouth affection is concerned. It has never been held to be a malarious disease; and though he may still be lured by the ignis fatuus malaria, and be led on to his doom into the swamps and mists of hypothesis, in pursuit of the cause of agues, he will have to adopt our simple and rational deductions, as to the cause and nature of the nursing sore mouth affection; we feel confident he will, before finishing our analysis of cases. It is not material, therefore, whether we have travelled out of the record, as the lawyers say, or not, in what we have offered on the subject of malaria. Our intentions have been good whatever may be the fruits. The hoary phantom has stood in our way, and provokingly thrown dust in our eyes for more than twenty years, still stands obstructing the pathways of medical science, and we have at last attempted to transfix him and clear the way with the only weapon that can do it, the quill, and to set up a legitimist, the rightful prince, in this usurper's boots. If we have failed, inductive science has sustained no injury, and we may still find consolation in the words of the poet:

"In great attempts 'tis glorious e'en to fail!"

But we have not failed: we have set the legitimate sovereign and ruler of swampdom and blue-nosed ague on the throne—a rational governor whose attributes are explicable, tangible, and comprehensible, and who is doubtless the true captain or prime minister of the realms of general pathology. We have not, then, proved too much for the specific object sought in this inquiry.

No one at all conversant with the nature, history and causes

of scurvy, will pretend to gainsay this obvious truth, this prominent deduction, that Illinois, topographically, eminently favors the development of scorbutus. Its paludal bottoms, breathing hot and cold with the same breath; its swampy uplands; its floods and inundations; its stagnant waters; its summit level morasses; its cold winters and wet springs; its frosts and blights; its excessive rains and severe droughts; its low, one-story cabins and exiled cellars; its short supplies of vegetables and fruits (we speak of the days of our observation;) its predisposing agues and fevers, as Lind has it, but as Dr. Barnes renders it, epiphenomena that *mask* the true pathology; its depressing influences upon the energies and hopes; its dessolating bilious fever epidemics, and masquerades of epiphenomena, carrying death and despondency into almost every family; all severely and impressively proclaim the fact. Such surrounding influences falling on breeding and nursing mothers, whose laborious duties often covered the daily programme for both mistress and servant, afford the reasons, or the why and wherefore, for the multiplied cases of the nursing sore mouth affection that fell under our care in Illinois, a running history of a few of the most prominent of which, constitutes the burden of this chapter, to which our readers' careful and candid attention is now invited.

CASE I.—The first case of the nursing sore mouth affection that fell under our observation and care, and the first time we remember to have heard of this popular name for a disease, was at Springfield, Illinois, June, 1835; the memorable year of scanty vegetable supplies, and lamentable state of the public hygiene before spoken of.

The patient resided in the village, and was suckling her third child, an infant then about eight months old. She had been laboring under the affection three or four months before our advice was solicited, and had been treated without marked or permanent benefit. It was an habitual affair with her; she had had an attack during each of her former periods of lactation, in the State of Massachusetts, from whence the family had emigrated; had weaned her infant on each occasion to save her own life, and both had died of cholera infantum;

and her infant at the breast was laboring under it. Her medical attendants advised, insisted, indeed, on the weaning of the infant as her only chance of recovery, but she pertinaciously refused, and fell under our care.

Our impressions, on first seeing, the case were, that the woman was mercurialized—she seemed to be laboring under a moderately severe pytalism. Her mouth was sore, sensitive to hot drinks, she could not masticate solid food, and still there were no very distinct ulcers to be seen, but there was a general scalded condition of the mouth with pytalism and a foetid breath. She was very anæmic, of almost alabaster paleness—had a diarrhoea that no remedies seemed adequate to control—much pain and tenderness of the abdomen—was very much emaciated—so weak she could but just get up, and occasionally walk about—there was a tendency to fainting and swooning that had excited the greatest alarm, and threatened to prove fatal on several occasions—she was exceedingly desponding, and continually apprehensive of evil. One circumstance alone seemed favorable—her appetite was good.

After a full and careful investigation of her condition, we had no difficulty in diagnosing this nursing sore mouth case to be of a scorbutic character, and the result of treatment abundantly verified our diagnosis. Lemon juice, loaf sugar and water, with brandy and a little morphine, constituted the main medical treatment; and as to diet, we fed her on strawberries and ice cream; bread and milk with strawberries; clabbered milk with sweet cream and sugar; stewed currants; stewed gooseberries; panado made with champagne wine, etc., etc., allowing her as much variety as the scanty vegetable supplies of that spring afforded. All the old potatoes had long been exhausted, and new ones had not come in. All the small fruits of the season were freely allowed, and if not fully ripe, were stewed. Custards were also a standing dish, in her dietary. Animal soups, and broths too, with cabbage, carrots, etc., added, and highly flavored with savory herbs, and well seasoned with salt and cayenne pepper, were ordered daily at her dinner meal. Under this generous dietary, *gradually adopted*, the bowels at the same time, restrained with brandy and sugar, and a little morphine, regularly admi

nistered; with daily ablutions and frictions of the skin, and a draught of solution of bicarbonate of soda, about half an hour after every meal, the patient was rapidly restored to health; *and the puny infant also.* In three weeks the mother was restored to a better state of health, than she had enjoyed since the birth of her infant. She nursed her infant through the summer, having a greatly increased flow of milk, and escaped the bilious fever, which was so strongly epidemic that season. The infant, though it recovered from its summer complaint without medication, took the ague in September, and was afflicted with it more or less through the following winter,

CASE II.—While in attendance on the foregoing case, we were called some twenty-five miles into the country to attend Mrs. C——, a miller's wife, who had been laboring under an anomalous affection for months, that had completely baffled the skill of her physician. Her case had obstinately resisted treatment since January, soon after her confinement, and had become of the gravest character. Such a state of sero-sanguinous salivation presented as had led the friends to believe the mercurial treatment had caused it, which her physician, however, declared was not the case, for he had not given her a grain of any mercurial preparation whatever. The woman was confined to her bed; was of pale, anæmic, sallow hue; very much emaciated; skin rough and dry; gums parted from the teeth, soft, spongy and bleeding; teeth loose and reclining; appetite good, but mouth in such a condition it was impossible to eat; breath horridly offensive; faintness, vertigo and palpitation on sitting up in bed; pulse very feeble; bowels had been constipated all the winter, but recently diarrhoea had set in with increased prostration; lactation nearly suppressed, and the infant sickly.

Our memorandum shows that three visits were rendered, and that at the end of three weeks the patient was so far restored as to be able to attend to her household affairs. The treatment was a yeast mouth-wash kept constantly brewing in the cabin chimney-corner; milk punch ad libitum, made of sweet milk, lemon juice, loaf sugar and brandy; and a generous dietary. The native gooseberries were large enough to

stew, and we advised their daily use; also, eggs, custards, soups, jellies, etc.; and as convalescence progressed and the mouth became capable of mastication, lettuce, mustard greens with vinegar, veal, venison, etc., until a full and generous dietary of solid food was reached. Daily ablutions and friction over the region of the abdomen were enjoined, together with soda drinks to correct acidity of the stomach from fermentation, and some mild vegetable astringent with a little morphine to check the running off from the bowels. The indications seemed to be fully answered by this course of treatment, for both mother and infant were rapidly restored to health.

Repeated ineffectual attempts to restore sucking infants to health by drugging them in that so called malarious region, the smallest doses of the most approved formulæ being generally rejected by their sensitive stomachs, and the observance of their frequent restoration to health from very unpromising states through the administration of remedies to their sickly mothers, taught us some early and valuable lessons in the treatment of infants.

Now, no one, in the least conversant with scorbutic affections, can, for a moment, doubt that these two cases were cases of land scurvy. The phenomena and the treatment all prove it. They were both the same form of disease unquestionably, and the first case, was the third attack of the "nursing sore mouth" affection, according to the patient's own account, that had occurred in her own person.

The above described cases of land scurvy, then, are such as the graver sort of nursing sore mouth cases present. It may have been fortunate for us that for three or four months we had recognized the scorbutic diathesis as a prominent element in the vernal diseases of that year, so remarkable for the extreme scarcity of vegetable provisions. Indeed we had already treated a number of similar cases in nursing mothers, who had suffered an attack of bilious fever the preceding autumn, and who were thus greatly predisposed to scurvy, according to the general acceptance. The cases reported, then, are types of many that occurred that season under our notice, in debilitated pregnant and nursing women, and all were successfully treated on the antiscorbutic plan. The

spring and summer were excessively rainy, and when the heat of mid-summer set in, under the exciting influence of which the bilious fever epidemic of that year was developed, the consequences were truly awful. Whole families were prostrated in all parts. The dwellers in towns and in the country suffered alike. No immunity seemed to have been acquired by habituation to the climate, for many of the oldest residents fell victims. Neither men, women, nor children escaped, but women were the greatest sufferers. Almost all pregnant women were attacked, and those attacked aborted, or suffered premature delivery. So constantly was this the case that it was a matter of observation with all the physicians, and settled down into an aphorism, that every pregnant woman attacked lost her hopes. Sundry cases were prematurely delivered under our care at seven or eight months. Some infants were still-born, some in a state of asphyxia that with great exertions were recovered, and others having a little stronger hold of life raised a feeble cry. Those that lived barely vegetated for the first few months, maintaining but a feeble hold of life, being pale and sorrowful, subject to ecchymoses, purpura, sore mouth, fetid diarrhoea or cholera infantum, and convulsions. What has been denominated pernicious fever was very common. Also the continued form of bilious fever was very frequently observed to run into the comatose state, from which few recovered. Now, how much of that grave epidemic was chargeable to scorbutus our readers must judge: the question has never before been mooted.

It is cheering to bear testimony to the great improvement that has taken place since that period, in the treatment of the so-called malarious fevers. The purgative plan of treatment by calomel, was, at that date, the standard practice, and quinine only given in small doses after an intermission, or a very marked remission occurred in the fever. The regulation of the secretions of the liver by broken doses of calomel was, in those days, the alpha and omega in the treatment. Now it is found that a full dose of quinine and morphine, administered in the hot stage, throwing the patient into a profuse sweat, effects more in twenty-four hours than the old method accomplished in three weeks, and no necessity to regulate the

secretions of the liver at all. Tonics, acids, and wholesome nutrition fulfil all the indications, after eliminating the effete matter by the skin.

The reader will doubtless pardon this digression, if digression it be, and any subsequent ones that we may be guilty of; for in our researches into the nature of the nursing sore mouth affection we must travel the road of our observations at the bed-side through the malarious epidemics of Illinois, and present the coincidences of cold winters, droughts, and blights in vegetation, with the epidemic manifestations of the nursing sore mouth malady. The fact of our model cases occurring coincident with blights, in years of dearth, is by no means to be lost sight of; and if we take leave to make a record of some other practical matters as we journey along, we trust our contribution will not be the less readable or less deserving of notice.

The constitution of the seasons of the year 1838, we have spoken of as remarkable—a summer of intense heat and drought following a very cold winter. The crops and fruits of that year were greatly abridged. Winter fevers prevailed and were very fatal. The vernal wave of disease was of typhoid tendency, and unusually severe and fatal. Nursing sore mouth cases were frequent, and other members of those families where the nursing mother was affected, often exhibited similar symptoms—pallor, lassitude, inertia, and drivelling sore mouth. In sundry instances we prescribed not only for the nursing mother but for the whole family. The objective signs of developing scorbutus would generally be present in different degrees of manifestation in the members of those families. In some there would be but a crimson line along the dental margin of the gums, while others would exhibit hyperæmia, or commencing sponginess of the gums. Infants and children who had suffered from ague were very prone to take on a chronic feebleness accompanied with a sore drivelling mouth. The bilious fever epidemic of the summer of 1838 was another swelling wave of mortality. It increased in force and fatality with the increase of the heat and drought, and continued to find subjects till late in autumn. The river bottoms were excessively pestilential locations. The cabins

contiguous to the margins of the dried up creeks and rivers were lazar-houses; whereas in the wet season of 1835, the habitations on the bottoms and river banks were the most healthful. One dose of calomel frequently produced salivation; and dry gangrene, or cancrum oris was sometimes an unexpected result. Pernicious fever or congestive chill often terminated fatally within twenty-four hours from the attack, the subjects being considered in good health previously. Continued bilious fever often ran into coma, after the first purgation, and terminated fatally on the third or fourth day. New-comers to the country suffered beyond measure; in some instances every member of such families died!

The spring wave of disease the next year was so palpably characterized by the objective signs and symptoms of scorbutus, that it may be said the scorbutic diathesis complicated all forms of disease. The winter of 1838—39, was mild and open, and the summer of 1839 pleasant and salubrious; and the crops uncommonly good; consequently the season was a healthy one. An early check was given to the unusual manifestation of scorbutus by an abundance, for that country, of early fruits, greens, and garden vegetables. The nursing sore mouth cases, however, of that spring were very common. The affection occasionally occurred in male subjects. All the cases we attended were speedily cured by a similar course of treatment to that which we have before given, but sundry cases of which we were cognizant, treated by other physicians proved fatal. One was a neighbor of ours and a male subject: we will report it.

CASE III.—Mr. B——, aged about 45, of slender make and sallow hue, was under treatment some two months in the spring of 1839, for the *liver complaint*, as his physician termed it. How much scorbutus is annually treated as disease of the liver we will not stop to inquire. He complained of lassitude, difficulty of breathing, and sense of oppression. He had great indisposition to exertion, and grew weaker as warm, spring weather opened. He had constipation of the bowels; panting and palpitation after the least exercise; fetor of breath and continual soreness of the mouth. He had regularly complained of these symptoms every spring, for seve-

ral years, and was as regularly relieved of his ailments every autumn, having a fruitful peach-orchard at hand. His wife had died of the same complaint while nursing an infant in the memorable spring of 1835. He walked out one day into the brush-thicket near his house to exonerate his bowels, being under the operation of small doses of calomel and rhubarb, and returning to bed, laid down and died suddenly, conformably to the scorbutic law.

We may set it down as a fact, that not a spring passed but that, sundry well marked cases of scorbutic nursing sore mouth presented; but that after cold winters, droughts, and blights, the disease would become very prevalent, almost epidemic; and the summer wave of bilious fever would also become correspondingly grave. So the inhabitants of Illinois, at the period of which we speak, were continually 'between hawk and buzzard,' or scorbutus and malarious fever, speaking after the general acceptation and considering them *two*; they acted and reacted on each other; the subjects of one were the victims of the other; and mothers and infants were the delight of both.

CASE IV.—In April, 1842, while on business in the military tract, we were desired by two medical gentlemen to see with them a case of disease that had baffled their best endeavors for months. We found the subject a nursing mother, very low and anæmic, with ulcerated mouth and petechiæ on the skin—there were vibices on the back as large as a half-dime, filled with bloody serum. The patient had been wholly confined to her bed for several weeks. Prostration, diarrhœa, despondency, great general distress, fainting fits, palpitation, fetor of breath, and cadaveric odor characterized the case. At our suggestion the patient was put under antiscorbutic treatment and regimen, and the course proved effectual: the lady was restored to health.

The winter of 1842—43, was a severe and long one. The spring of '43 was greatly retarded. It seemed as if winter only retired when conquered by solstitial June. The ground could not be prepared for cropping in due season, and all the early fruits and vegetables were poor and stunted, and the crops of that season greatly abridged.

The vernal diseases of that year were characterized by ty-

phoid tendencies. The nursing sore mouth was common, and men, women and children were drooping and drivelling under it. Winter fever was epidemic, that is, continued bilious fever occurring after the remarkable thaws of winter, followed suddenly by intense cold. After a few days treatment on the old mercurial or purgative plan, many of these cases would pass into delirium and coma, and terminate fatally. Typhoid pneumonia became prevalent under the spring vicissitudes. The congestive form of ague, or pernicious fever followed; and also characterized the summer epidemic of that year. Scarlet fever prevailed that spring, and was very malignant. As warm weather finally came on in May, sudden deaths occurred in the corn-fields. Several farmers in the settlements round about died thus, while at their spring work; after the manner of sun-stroke; but only really explained by the law of sudden death from shock seen in scorbutus. This is our explanation *now* of the matter, and of other phenomena that were so strange and mysterious to us then.

True we had advanced a little at that date by the knowledge that scorbutus was an element in the causation, or aggravation at least, of diseases. We were prone, however, to localize it; to confine it to certain families; nursing women and drivelling children more especially. We recognized the nursing sore mouth affection as a form of scurvy, nothing less or more; and we diagnosed it in its complications by the physical signs; but we had not the same idea then of its pervading influence as an element in the causation of the epidemics of Illinois, that we have since become satisfied it exercises. We had advanced a little too in therapeutics; had found that quinine and morphine were highly admissible in the hot stage of fever, but we had no rational idea of the therapeutic effects. We only knew the fact from repeated trials that one full dose of quinine given in the hot stage combined with morphine did more good than a dozen small doses given in the intermission. *Now* this problem is plain: given in the hot stage the dose hurries the patient at once into the sweating stage, and drenches off by the skin a ten-fold quantity of the effete detritus, that the efforts of nature were inadequate by repeated trials to effect. The fever is thus broken—the pulse returns

to its normal standard—the way is clear for nutrition, and the appetite ravenous. Support digestion with tonics and antiscorbutic food and the patient will have no relapse, but without these precautions the nutritive function will again become clogged, and nature will resort to her method of trying to throw off the effete matter by sweat—a habit acquired by night refrigeration and day insolation and sweating. According to the quantity of effete matter thrown off, may be the state or duration of apyrexia, for ought we know, explaining the reason of a quartan, a tertian, and a quotidian—also of relapses. We have never seen a *rationale*, and offer this explanation for what it may be worth. It looks reasonable.

In the autumn of 1843, we changed our residence from the Sangamon region to the city of Chicago. The winter of 1843-44 was characterized by remarkable vicissitudes of weather—extreme frosts and sudden thaws. The spring and early summer of 1844, were exceedingly wet, so as greatly to embarrass planting and growing vegetables, not only in the Lake Michigan region, but throughout the State, so that the crops of that year, may be set down as decidedly short. The extraordinary flood of that year, in the Mississippi and its tributaries, is a matter of history.

The following winter, again, was variable and unpleasant; and the spring and summer of 1845, again, characterized by excessive rains and high waters, to the great annoyance of the farmers in the flat, prairie country, so that the crops were likewise abbreviated that year. The following winter, that of 1845-46, was very cold, and the rains and floods of May and June, '46, again seriously interfered with the planting and growing of summer vegetables, and the summer and autumn were characterized by excessive heat and drought, which abridged ^{1—no} crops materially. The following year, 1847, was remarkable for the scarcity and the high prices of provisions. These disastrous years were noted for the potato blight, and general sickness in the United States, and the Irish famine, and its climax of consequences, scurvy, typhus, and finally cholera, in Europe.

The cases of nursing sore mouth, were so common in the springs and summers of all these years, that it may be said to have been epidemic. We frequently met with a nursing

mother, her infant, and two or three of her other children laboring under it in different degrees of severity, and in some instances whole families were affected. A few in the first walks of life died. We were called to prescribe for a family living out some two or three miles from the city, on the flat, wet prairie, in the spring of '44, all of whom, three men and two women, mother and daughter, were nearly prostrated with it. Neither of the women was a nursing mother, but they both had the constitutional and local evidences of the malady, in a marked degree. The grown daughter's mouth, exhibited several large, spongy ulcers, one of which was on the vellum-palati, and came near destroying it. She had also, ulcerations of the os tincæ and vagina, lencorrhœa, and falling of the womb, the almost constant symptoms of this constitutional malady in women.

The constitutional symptoms were manifested with greatest severity in the old man, who was confined to his bed. The family imagined themselves poisoned, from eating damaged flour; but the cause of the calamity was a more general one—the stinted vegetable products of their little wet farm, had all been sent to the city in the fall, commanding high and tempting prices, and the family had lived all the winter on pork and beans, and bread and coffee. A generous anti-scorbutic course of treatment, see case No. 1, with but little recourse to medicine, restored this family to health.

In our interchanges of views and professional courtesies, we occasionally saw cases of this very common affection, in the practice of other physicians, and our suggestions of its scorbutic nature being acted on by the adoption of anti-scorbutic treatment, the cases uniformly responded and rapidly recovered.

A few types or model cases that occurred in our practice, during the disastrous blighting years of 1844 and 1845, we have spoken, deserve a more detailed report.

CASE V.—In June, 1844, we attended an inveterate case of this disease in the person of an Irish woman, broken down by rapid breeding and poor living. She was nursing twins, three months old, doing her housework, and taking care of three other children, just out of her arms, at the time she

collapsed. She had been gradually getting under the constitutional and local symptoms of the disease, since her confinement in March; and when we were summoned to attend her, the mouth was swollen with ulceration, and she had serous diarrhoea, the discharges resembling the rice-water discharges of Asiatic Cholera, even to the *floating floculi*. We took notice of this character of the discharges for nearly a week, more or less, when, from treatment, the diarrhoea ceased, and the woman began to recover. She got on so well under the tonic and lemon punch treatment, with a generous diet, that at the end of a month we had ceased to look after her.

About six weeks from the time we were first called to the case, a summons came for us to attend her in great haste. We found her vomiting and purging rice-water fluids, and in every sense of the word, laboring under an attack of Asiatic Cholera. A sporadic case. The summer heat was intense; her confined unventilated shanty, was reeking with filthy odors; she had imprudently eaten heartily of boiled cabbage for dinner, and cholera was then threatening her with speedy collapse. We, however, arrested the progress of the disease, by means of a salt-water emetic, followed by opiates, and had the happiness of seeing her recover. She continued feeble, however, till fall.

In October, she was attacked with bilious fever, and was attended by another physician. We were, however, summoned to her bedside, a day or two before she died, and found her dying of dry gangrene of the mouth, from the use of mercury!

CASE VI.—March, 1845, attended Mrs. J——, in labor. She had been feeble all the winter. Found a midwife in attendance, who had desired that a physician might be called, because of the delicate state of the health of the patient. The labor was natural—no hemorrhage followed—but the patient began to sink before she was bandaged and changed—said she was dying—complained of universal numbness of feeling—we grasped the womb—compressed the abdominal aorta, in our anxiety to do something effectual; but, inasmuch as there was no hemorrhage we desisted—she writhed, and moaned, and sighed, and gasped, as life waned—stimulants, fresh air, rubbing, ether, aspersion, were hurriedly made use of in our endeavors to restore her, but all to no purpose, she died.

In Collin's Midwifery, will be found a number of similar cases, where death occurred after natural labors, and the cause wholly inexplicable. We hold that the cause of death in such cases is the scorbutic diathesis. Similar cases have undoubtedly fallen under the observation of most obstetricians. Sudden death after the shock of parturition, the reader will remember, occurred in Dr. McGugin's case of nursing sore mouth; also, in Dr. Marshall Hall's cases of a serious affection.

CASE VII.—In March, 1845, we were summoned to attend Mrs. G——, whom we found in a very delicate state of health, and daily expecting her confinement. She had been an invalid all the winter, and had been treated the whilst homœopathically. She was able to sit up a part of the time, and even to walk about the house. She was very much emaciated; of pale, icteric appearance; mouth sore, and drivelling, with a dark, dirty ulcer on the left side of the tongue as large as a Lima bean, having a crimson, bleeding margin, and a dark, ill-conditioned centre. The ankles were œdematous, and her legs bespattered with petechiæ. We prescribed and gave directions as to diet, and retired. Early the next morning, before we had risen, a call came to attend her in labor. She had an easy accouchment; there was no hemorrhage; the infant was small and feeble; the putting to bed, was attended with as little exertion on the part of the patient, as possible; cordials and nourishment were ordered and we retired. Within an hour we were summoned to return in great haste, when we found her dying. She was in the full possession of her reason, and able to speak, and conscious that she was dying. The phenomena were sinking, moaning, catching for breath, numbness of feeling, writhing to and fro, gasping, and death. She must have been half an hour nearly, in her agony, and no restoratives of fresh air, hartshorne, brandy, rubbing, etc., were of any use. We grasped the abdomen over the region of the uterus, and found the womb in a state of tonic contraction—there had been no hemorrhage. We regret that we lost sight of the fate of the infant. It was probably reared by aid of a wet nurse, as the family was in affluent circumstances. Our opinion, as to the nature of the affection of which this

lady died, viz: nursing sore mouth or land scurvy, was freely expressed to the friends, and anti-scorbutic diet commended to the family.

CASE VIII.—April, 1846, summoned in great haste to attend Mrs. L——. She had aborted with dispatch after a walk, hardly reaching home soon enough. We found the ovum expelled entire. There was not much hemorrhage, but she was greatly alarmed, and soon commenced sinking, sighing, and gasping for fresh air, and taking on fatal airs, after the manner of the two cases of death after delivery above detailed. The paroxysm was not like syncope from loss of blood, for there was perfect consciousness. Prostration, with universal distress, manifested by turning, twisting, panting, moaning, and complaining of a sense of numbness or universal loss of feeling, constituted the phenomena. Fresh air, fanning, aspersion, ether, rubbing, hot brandy toddy, diligently and perseveringly used, finally restored her to quietude.

On examining this patient's mouth with reference to the suspected cause of the sinking fit, the objective signs of the scorbutic diathesis were manifest in the crimson line along the dental margin of the gums; hyperaemia of the arches of the palate; pale tongue, etc. Her countenance, too, was pale, and there was fetor of breath with constipated bowels.

The husband and a child three years old were also laboring under the scorbutic diathesis. They had the objective signs in the mouth; the husband had sallow countenance, bleeding piles, and great constipation; and the infant foetid diarrhoea, sore mouth, and tumefied gums.

The proper antiscorbutic remedies and diet soon restored them all to health.

CASE IX.—We were consulted in April, 1846, by a shoemaker, complaining of abdominal pains with general indisposition. A mild cathartic was ordered him. He returned the next day with his symptoms much aggravated, and a sore mouth superadded. On a more careful examination the scorbutic sore mouth of nursing women was very evidently the difficulty. Besides soreness of the tongue and buccal surfaces, the gums palpably revealed a scorbutic condition by the red line along the teeth, and commencing tumefaction. His con-

stitutional symptoms were, lassitude and sense of weakness with abdominal distress. After about two hours work in the morning he had to give up and lounge the balance of the day. His appetite was good, and he thought it strange that he should feel so feeble. Was very regular in his habits even to teetotalism, and could assign no cause for his "bellyache" as he called it.

On questioning him as to his dietary, it appeared that he had eaten no potatoes, turnips, cabbages, onions, or pickles for nearly three months. Pork and beans, homminy, and bread and coffee constituted his bill of fare. We asked him what he would like to eat, what he craved? He replied, "a raw turnip." He was dismissed without further drugging and advised to eat as many raw turnips as he wished, and to live chiefly on vegetables. In a few days he called again to say how well he felt, greatly to the surprise of some of his croaking cronies who told him his doctor's advice would be the death of him.

CASE X.—A visit of courtesy in the family of a friend, whose wife had for a long time labored under a grave attack of nursing sore mouth,—visit timed adroitly, yet so as to seem accidental,—afforded us an interview at the bed-side, as we desired, with her physicians, with whom we were on terms of friendly intimacy.

The patient had been blistered over the abdomen for the pains and tenderness; her cravings for acids, pickles, and sour fruits had been denied; the mouth was in a sore drivelling condition, resembling mercurial salivation; despair and distress clouded her palid and sunken countenance; she was unable to rise from her bed; and altogether the case was very unpromising. At our suggestion that the affection was of a scorbutic character, the case was thenceforth treated with lemons, oranges, and vegetable nutrition, and the lady rapidly recovered.

Collateral evidence of the prevalence of the scorbutic diathesis, as an overlooked element in the diseases of the pestilential years under consideration, is afforded by the aggravated character of the epidemics that afflict children. To be more explicit, the scarlet fever was epidemic in the springs of 1844, 1845, and 1846, in Chicago, and proved very intractable.

In some instances nearly every child of the families invaded died. As many as three or four children in the same family died of it in several instances. It remitted in autumn, and reappeared in aggravated form every spring. The most malignant cases of the anginose scarlatina presented, that we ever remember to have seen. The whole mouth and fauces would often present a foul, sanious, phagedenic, ulcerated condition, of putrid character and offensive odor. Why this tendency to a dissolving state of the tissues of the mouth, unless from complication of the disease with scorbutus? It is stated by Dr. M. B. Wright, in an article on the scurvy as it appeared in the Ohio Penitentiary in the memorable spring of 1835, that one of the patients spit up his palate! we shall refer to this paper again. Coincident with the spring waves of scarlatina, we have taken note of the epidemic vernal manifestations of the nursing sore mouth affection. Dr. Miner, it will be remembered, speaks of its epidemic appearance, and Dr. Marshall Hall observed the same affection in males. Sundry instances came under our notice in the spring of 1846 where not only the nursing mother had this sore mouth, but several of the children of those families also. We remember one family where *four of the little children* had drivelling sore mouth coincident with the mother's attack, together with constitutional symptoms. Now, what would have been the probable consequences had scarlatina impinged on that household? The summer complaints of infants, or the epidemics of cholera infantum, were particularly severe and unmanageable also, during those years; and as in 1835, and 1838, we noticed that infants at the breasts of those mothers who had nursing sore mouth often had it. Why this, unless dependant on the mothers' scorbutic taint? Now and then a case of Asiatic cholera occurred.

The summer epidemic bilious fever in the hot, dry summer of 1846, was, again, of most remarkably aggravated character, in Northern Illinois. It was a repetition of the epidemic of 1835, in the central regions of the State. Pernicious fever was common, especially among laborers on the Illinois and Michigan canal, where insolation by day was withering; upward radiation or cooling by night in open shanties without

floors, sudden and excessive; and where the dietary for the six months previously had been little else than bacon, bread and coffee. We took note also of the greater frequency of attacks as well as graver character of the types of fever among the foreign population, and the poor, living back from the lake and along both branches of the Chicago River; and comparative immunity of the dwellers on the lake shore, who were better fed and better housed, and where the expanse of water tended to equalize the temperature of day and night, and where also the sleeping apartments are in second and third stories; corroborating the view that extreme impressions of the vital stimuli develop these fevers, rather than a hypothetical malaria.

There was the same tendency, also, in the fevers of this year, to assume the comatose condition and end quickly in death, that characterized the epidemics of some previous years, especially those cases in which depletory treatment was resorted to. In some few instances patients were recovered from the comatose condition by heroic doses of quinine, where the patients were not past swallowing; and where this course failed we saw its power and salutary influence in producing a partial return to consciousness occasionally manifested. The objective signs of the scorbutic diathesis were observed in these cases, and is it not rational to infer that a scorbutic ramollissement of the brain is the true cause of the coma, and that in the cases which do not respond to a free administration of quinine, there is hemorrhage or extravasation, either serous or sanguineous, agreeably to the scorbutic law? We doubt not the softened condition of the gums has been noticed in malarious fevers by many physicians who have never thought of attributing it to scorbutus. Doubtless many have marvelled, too, that the smallest exhibitions of mercurials should frequently produce salivation. Now, according to our experience, these cases, where there is no tolerance of mercury; where whole families sicken of malarious fever, and it assumes an aggravated character; and where, though it be interrupted, relapses are very common, indicate scorbutus. We found the citrate of iron and quinine more effectual in preventing relapses than any remedy we had ever prescribed, especially when

aided by lemonade drinks and antiscorbutic diet, or plenty of good food and acids.

CASE XI.—A case of nursing sore mouth came into our hands in the spring of 1847 that was very instructive. The lady afflicted was from the city of New York; had labored under the affection nearly the whole winter, and had been advised by her physician to travel. She visited Chicago in May, and remained through the month of June with her sister. Every effort to conquer the disease had been unavailing; she had been dieted and drugged to no purpose; and was, indeed, a pitiable victim of medical ignorance. We do not remember who had been her physician, nor would we speak it if we did, although there is nothing reprehensible in not understanding how to cure nursing sore mouth cases with dispatch, but there is in not knowing the pernicious influence of a one kind of diet long persisted in. This patient had been dieted by her physician, so she said, all the winter and spring, on oyster-soup, soda biscuit and tea; and I have no reason to doubt the truth of her statement. The truth is, the state of her mouth would not allow of her eating solid food, and there is a popular, if not a professional prejudice against allowing suckling women all manner of vegetables and fruits, because, it is held, they produce distressing if not dangerous colics in their infants. Now this restriction in the diet of pregnant and nursing women is, undoubtedly a frequent cause of the setting in of the nursing sore mouth affection, or the scorbutic diathesis.

Dr. Wood, says, (*Practice of Medicine*, vol. 2. p. 252). "Even the regimen of the sick, in ordinary private practice, should be regulated by the physician with some regard to scurvy, which, within the experience of the author, has appeared to result, in one instance at least, from a restricted diet, too long continued, under medical direction." He says, (*op. cit.* p. 256), "Meat, whether fresh or salt, cannot be the cause of the disease; [scurvy] for it is sometimes produced when little or no meat is furnished, as, among the people of India, when confined in hospitals and prisons, and fed upon rice and other farinaceous products. The author has witnessed a case of the disease in a young lady, who was confined for a

long time, for the cure of an obstinate diarrhœa, to a diet exclusively of barley."

This case of obstinate nursing sore mouth that had been so long under an improper course of diet, responded immediately to a generous use of lemons, oranges and other fruits, with a variety and abundance of nutrition.

Several cases of sudden death occurred during those years, in no way susceptible of explanation but by the scorbutic law. A distinguished prelate, the late Bishop Quarter, died in the spring of 1848, suddenly, just after the rigid fast of lent, without sickness, or more than lassitude, weariness, inertia, etc., of which he had complained for weeks. He died suddenly at night, before medical aid could be summoned, and the best account we could get of the matter from those in attendance was, that, when attracted to his sleeping apartment by his moanings and last agonies, it appeared that for some cause he had risen from his bed. His pains were greatly referred to the abdomen, but he was soon past utterance.

Our explanation is that, a return to a full diet immediately after lent, produced derangement of the stomach and bowels, and the shock proved fatal, conformably to the scorbutic law. Observing his sallow and jaded look some days before, we sent him a jar of extra-nice, mixed pickles; but he observed subsequently on thanking us for the attention, that he never ate pickles at all, under any circumstances!

We visited the mining regions of Illinois, Wisconsin, and Iowa, in the spring of 1848, and met with sundry cases of the nursing sore mouth in our travels. One case that fell under our notice was the wife of a physician, and, the case, though inveterate, responded directly to antiscorbutic treatment. A clever physician of Iowa informed us that it was a common affection in his locality—Davenport—and that he had found the *chlorate of potash* an effectual remedy. The efficacy of the potash salts has been spoken of before.

The winter of 1848 '49, was one of extraordinary inclemency. It set in with deep snows in November, and continued till late in March; and the terrible disasters and destruction of property by the spring floods throughout northern Illinois, were too remarkable to be soon erased from memory. The

destruction of property in the Chicago harbor was very great. The Des Plaines River o'erspread its banks, and discharged its flood of waters across the summit level prairie and through the canal into the south fork of the Chicago River, carrying before it the great burden of solid ice, eighteen inches thick at least, that had formed on the ponds of the prairie during the winter. The bridges over the Chicago river were broken loose from their moorings by it, and together with the shipping—sailing vessels, steamboats, and canal boats—hurried out into the Lake, or crushed, sunk, and gorged, pell mell, in the bend of the river just above the piers.

During the spring of 1849 frequent cases of the nursing sore mouth affection came under our observation, and all forms of disease were again dreadfully aggravated by the scorbutic diathesis.

CASE XII.—A physician's wife, a near neighbor and friend, fell a victim to this "serious affection," I think in the month of April of that spring. Our families were intimate, unceremoniously so, and living but a few doors apart, we saw this estimable lady often through the winter and spring. She was naturally rather a delicate, feeble woman, and being enciente through that long, cold winter, and necessarily shut up and confined within doors, her health and digestion suffered seriously. She had the heart-burn almost constantly, and we remember to have heard her say that a raw turnip scraped was the only thing that would relieve it, and this they prohibited. She had much palpitation of the heart, and great and increasing constitutional feebleness, and her confinement was awaited with much anxiety. She became very anæmic and nearly helpless at her full time; had a hard labor; did not get up or progress towards health at all after her delivery; in fine, had the constitutional symptoms of the nursing sore mouth developed in an inveterate degree; and one morning, after the exertion of changing and having her bed made, she fainted in her chair, and died. We were at her bed-side almost immediately, before she ceased to breath; and kept up artificial respiration some minutes, but all to no purpose, the sudden law of collapse incident to scorbutus had been irrevocably executed.—she was dead.

This case occurred in a wealthy family, and explains how it is that the nursing sore mouth or scorbutic diathesis is often developed in the wives and mothers of families able to bring to their daily board every luxury the season affords, but who from mistaken notions of prudence engender scurvy by a restricted diet. Thousands of breeding women in the upper ranks of life are destroyed in this way. Extremes thus approach; while the poor are unable to obtain proper food, the wealthy often restrict themselves to bread and tea, or a farinaceous, innutritious diet to cure their dyspeptics brought on by inaction or sedentary habits, forsaking pot-luck dinners, and cabbage swimming in vinegar; and so both rich and poor fall victims to scorbutus. Women pregnant for the first time, we have often seen victimized by Graham rules of restricted diet. Be careful in your diet is the kind watch-word of a mother, who knows nothing of the laws of physiology, and which really means, abstain from pickles, vegetables, fruits and preserves; when, if ever there is a time these articles of diet are especially demanded, it is at the time when nature requires a double supply of all the wholesome elements of nutrition—the period of utero gestation.

About the first of June 1849, the Asiatic cholera broke out in Chicago, in a population where all, or at least whole families were laboring under the scorbutic diathesis, as we have shown. It made its ingress by the way of the Illinois and Michigan canal, speaking of it as a traveling death angel, and coming up from St. Louis and New Orleans. It had appeared faintly in New York the previous autumn, that is, a few cases had occurred in the locality called the "five points," among European emigrants from quarantine. A ship had just arrived from Europe in which the cholera had broken out at sea, this ship, however, not having sailed from a port where it was raging though it was epidemic in other cities. It ran through the quarantine hospital at New York, but lay hushed in the city until spring. It had appeared at New Orleans also under very similar circumstances in December previously, having broken out at sea in an emigrant ship, and it spread in New Orleans, or manifested considerable activity among sailors and immigrants. It became strongly epidemic early

in the spring, and coquetted all the winter and spring with St. Louis, where it established itself as warm weather came on, and raged with frightful mortality in June and July, showing great partiality for the immigrant population, largely congregated there, and the poorer classes of foreigners. It was not slow in progressing up the Illinois River, attacking the most important towns successively. At Peru, under the bluffs, at the head of navigation and junction of the canal, it caused a terrible panic, proving very fatal at its onset, and causing everybody to fly. Of some five thousand inhabitants not one remained, it is said. At Chicago it proved very mortal, sweeping off nearly every member of some families, particularly those first attacked. It passed on eastwardly, via the lakes, raging with great severity and fearful mortality in certain localities, particularly at Sandusky City, in Ohio, a good scorbutic locality, or a cold, damp, fishy place. The Ohio River was also a channel of its travels, and Louisville, Cincinnati, and other cities, were also theatres of its ravages during the same time that it raged at St. Louis and Chicago.

CASE XIII.—It so happened that the first case of cholera which fell under our care, occurred in a suckling mother—a nursing sore mouth subject. Like all the first cases of that epidemic it proved fatal in a hurry; and most remarkable to say, there was neither vomiting nor purging! It was one of those very malignant cases which always characterize the opening phenomena of a grave epidemic. The corpse was “black and blue” immediately. The rapidity of the case, and the evidence of putridity caused us no little anxiety on account of the other members of the family; but strange to say, neither the husband nor children were attacked. It was an American family in good circumstances; and whilst whole families in the lower walks of life, and particularly among the foreign population, were being cut off in the first outbreak, the balance of this family escaped attack. We say this was a nursing sore mouth case; although we had not been called to prescribe for it as such. The infant was about five months old: we presided at its birth in December previously, and the lady had a good getting up. We regarded her as a person of good constitution, though enfeebled by rapid breed-

ing. She had suckled her infant through the long, cold winter, and was much prostrated by the approach of warm weather, although she had not sought medical advice. Her symptoms, were not vomiting and purging, when she did consider herself sick enough to need advice, but sinking, prostration, trembling, palpitation, difficulty of breathing or inability to get a sufficiency of fresh air. There was palor of countenance; a dejected look; a sunken eye, and a dark crescent under it; sense of oppression, and frequent sighing. She had suffered a sudden aggravation, or a paroxysm of her ailments that had totally unnerved her that morning, and the reports of the cholera had doubtless aided in the matter.

We treated this case very badly. Without reflection, or any philosophic sense, or sound pathological reasoning, we opened a vein and bled the patient about six or eight ounces. She sank and died in four hours at farthest. We were with her most of the time. She threw up once, that is, some medicinal draught was ejected, which was all the vomiting that occurred, and there was no purging, and there had been none, so the patient said. The vomiting was characteristic of true cholera—full, forcible, and finished.

Thousands of cases are treated just as empirically. The malignancy and rapid tendency to death, is ascribed to the "epidemic influence." Whatever is to be done must be done quickly, in order to counteract, or prove antidotal to the poisoning influence supposed to exist in the air. We labored, at that time, under this delusion, and so all-powerful was its influence, that nosology governed us wholly. A little blood early drawn, has been a favorite mode of treating diseases tending rapidly to putridity—even typhus fever. We treated many cases of cholera so in 1832, when ward physician in Baltimore, and supposed it the right method. Some got well after it, any how; but this case went like the dew. It was a most malignant case of cholera, where the powers of life were too much paralysed by the poison, for the usual phenomena to be developed. So we reasoned then. We did not even think of scorbutus, in that case. The idea of CHOLERA eclipsed everything. Subsequently, however, we judged this a case of cholera complicated with scorbutus, or the nursing

sore mouth affection. The dying phenomena were similar to those manifested in the sudden deaths after delivery—jactitation, moaning, sighing, gasping, and numbness of feeling, with clearness of intellect. It was impossible for us, on mature reflection, not to see the evidences of the scorbutic diathesis in this, and many other similar cases, that came under our notice, during that epidemic. The complication, in numerous instances, was too manifest to be gainsayed, and the idea early exercised an influence on our prescriptions. Still, we considered the complications accidental; or in other words, we saw that the scorbutic diathesis was an aggravating element of the choleric disease, as well as bilious fever; and it influenced our practice; led to a free use of punch and quinine, soda powders, etc.

CASE XIV.—Mrs. J——— was delivered of her second child under our care, in June, 1849. She had a quick and easy confinement, without accident. After being changed and put to bed, and as we were about to leave the house, she commenced sinking, and sighing, and gasping for fresh air—complained of numbness or general paralysis of feeling—universal distress, moaning, jactitation, etc., and declared she was dying. The windows were thrown open, and stimulants internally and externally liberally administered—rubbing, sprinkling with cold water to cause deep inspirations—everything, indeed, of a restorative nature was rapidly and perseveringly resorted to, and at the end of some twenty minutes or more, she began to improve, and slowly became composed and comfortable.

On inspecting this lady's mouth, the gums displayed the crimson line along the dental margin; the buccal surfaces were marbled with eschymosed patches, and the tongue was sore. On strict inquiry we found that she had had slight diarrhoea for two days, attended with no pain, but which was manifestly the incipient stage of cholera.

We put her under lemon punch, morphine, and quinine, and a thorough anti-scorbutic regimen, and she had a good getting up. It was evident to us, that here was a complication of scurvy with cholera, or in other words, that cholera was setting in on a nursing sore mouth case. We enjoined an

anti-scorbutic course of diet, and the patient steered clear of cholera the balance of the summer.

CASE XV.—On the evening of the same day of our attendance on the last reported case, we were summoned in the greatest possible haste to an Irish woman in labor, who had the cholera. We found her vomiting, purging, and flooding! Of course she was on the downward road with dispatch. We made a footling case of it in no time, and gave an emetic of common salt dissolved in plain water. The after-birth came with the child, and the child was still-born; not from pressure of the cord, for there was no detention of the head. We grasped the womb through the parieties of the abdomen—bandaged and put the wilted woman whom we had little expectation of saving, into a clean bed. The emetic had been doing its work—the stomach was now quiet—the uterine hemorrhage had ceased—we gave her an ounce of the following mixture, which we carried generally during the epidemic, for an emergency: *R. Tr. Rhei. C., Tr. Catechu., Muc. Acaciæ. Syr. Simpl. a. a. 3j., Carb. Sod., Carb. Amoniæ. a. a. ʒj. Morphiæ Acetat. gr., j. M.*, administered in a little sweetened water, and repeated it as often as there was either vomiting or purging. Vomiting did not recur, and the purging was controlled by a few doses of the medicine. On our visit next day, she was out of danger and quite comfortable.

We had attended this woman in 1847, for an inveterate attack of the nursing sore mouth affection, and the infant, then at the breast, was sick all that summer with diarrhœa and teething. The family came over in the sickly summer of 1846.

On inspecting this patient's mouth, the evidences of the scorbutic diathesis were abundant, and she was treated anti-scorbutically thenceforward, and had a good getting up.

CASE XVI.—In July, 1849, we were hailed in passing, and desired to afford assistance to a woman supposed to be dying. We found her agonizing and writhing under such a tumult of general and indiscriminate suffering, with sinking, and catching, moaning, turning, and gasping, that we find it difficult to draw a picture of her death-struggling tortures. She was at her full time in utero-gestation, but her agony bore

no similitude to the throes of parturition. She had been prescribed for the day before, and had taken a small dose of castor oil, which operated severely, and continued in the manner of a serous diarrhoea. Laudanum and brandy toddy were given freely, and not much diluted: chloroform held to her nose; and fanning and aspersion made use of. She gradually recovered from her attack, under a steady application of restoratives.

Three days after, she was delivered under our care; had a hard labor; we used chloroform with caution, every means to alleviate suffering, and enable her to pass through the ordeal; but she seemed to have no capability of endurance; and soon after delivery, began to sink and take on the collapsing phenomena that we had seen prove fatal on several like occasions. We were well prepared for the event, so far as stimulants and restoratives could be of use, and by lowering the head, fanning, strong brandy toddy, smelling salts, etc., etc., diligently made use of, she finally passed through the attack.

The objective signs of the scorbutic diathesis were very evident in this delicate woman's mouth, particularly the red line along the dental margin of the gums. She had deprived herself of all succulent vegetable food and sallads, for two months and more, to guard against the cholera; had the strongest desire for acids; and had twice, but barely escaped the law of sudden death, from shock known in scorbutus, to wit: after a purge, and after delivery. We looked upon her diarrhoea, at first, as choleric, and regarded the case as complicated.

The most liberal use of vegetables, lemons, porter, etc., restored her to health and comfort, and satisfied us of the correctness of our diagnosis.

CASE XVII.—We have incidentally spoken of ulcerations of the womb and vagina in the nursing sore mouth affection, and have signified that the scorbutic diathesis is frequently the inheritance of infancy, the cause of chlorosis and tuberculosis at puberty, and of nursing sore mouth in mothers during lactation—the cause of the leucophlegmatic constitution with its attendant evils, ulceration of the womb, leucorrhœa, etc., etc. We could report many of these sort of cases, and some

where the local uterine and vaginal difficulties were so prominent as to appear to be the cause of the constitutional infirmities. Much observation, however, in the treatment of this class of cases on the most heroic antiscorbutic plan, has satisfied us that all these vaginal and uterine lesions, of which so much has been written and said of late years, and in the treatment of which the profession has been so shocked with the universal speculum practice, are but the offspring of the scorbutic diathesis; the local lesions being dependant on the constitutional difficulty, the same as in the nursing sore mouth affection. They require to be treated on the same heroic, antiscorbutic plan. The local lesions will disappear when the general health is established; yet we approve of local treatment.

Mrs. S.—, a widow, came under our care in the spring of 1850, a victim of protracted scorbutic dilapidation, with ulceration of the mouth, tongue, intestines, vagina and os uteri. We had attended her in an attack of the nursing sore mouth affection in 1845, after which the family moved into the country, where she was left a widow, and returned early in the spring of 1850 to reside with her sister. We treated her with the most concentrated nutrients, tonics, wine, cod-liver oil, etc., with applications of nitrate of silver to the local lesions, and although the case responded with but a snail's pace, still there was some improvement; the local lesions, all except the uterine ulcer were healed, and the general vigor of the patient considerably improved. However, on the breaking out of cholera when hot weather came, we were suddenly relieved of our attendance on this case. She was one of the earliest victims of cholera, and died in three hours from the attack!

Not to weary our readers, these are types of a goodly number of cases that occurred during the epidemic visitations of cholera in '49 and '50, under our care that showed the disease to be complicated, as we then supposed, with scorbutus. We saw it aggravated by it, as we had seen the bilious fever epidemics, and other forms of disease, and the mixed, intercurrent, nursing sore mouth-cholera cases, made a lasting impression upon us. We noticed the good effect of anti-

scorbutic remedies in numerous instances, and also the great value of quinine and morphine. Soda powders in ice water were held in high estimation, and small vials of fountain soda water kept cold with ice were much used in treating cholera infantum. We noticed that cholera delighted in the localities held to be the strong holds of malaria, and with but confused notions, we confess, at best, in etiology, we reasoned from the facts before us, that brandy-punch, quinine and morphine were the true means of preventing an attack. In this we were not disappointed. In families where we saw the evidences of scurvy, as in the nursing sore mouth cases; in some patients bedrid for years; in certain immigrants from Europe, Irish, Dutch and Norwegian; and some returned volunteers from Mexico,—where we saw individuals dropping with cholera in whom we noticed the objective signs of scurvy, we put those families under prophylactic treatment, and saw them all benefited, and generally escaping attack. Those cases that proved fatal without vomiting and purging, made a deep impression, and we were forced to call in the aid of the scorbutic law of sudden death, to explain them. Other practitioners observed such cases also, so we have heard them say, but no rational explanation has ever been offered before that we are aware of. Under the view taken by us that the scorbutic diathesis was present, nothing is easier to understand—the law of sudden death even from the emotional shock of fear, is sufficient to prove fatal, without any exhausting drain. More women die of cholera than men; and the breeding or child-bearing period of life is the age most liable. That women enfeebled by pregnancy and lactation should fall easy victims to epidemic cholera, then, is rational, and conformable to observation; but let a poor, one-kind of diet, be used, such as the lower classes must be restricted to, under the high prices of provisions after short crops, and the sudden deaths after delivery or under attack of cholera are explained. The restricted regimen and inaction of breeding women in the better walks of life, inlaying the scorbutic diathesis, explain the happening of these cases in the higher walks of life. But further than this, we have reason to fear that much evil has resulted to whole municipalities from erroneous doctrines

inculcated by the medical profession regarding diet during the raging of epidemic cholera, proscribing the daily use of succulent vegetables and fruits. In this way the inhabitants of our cities have been dieted by medical opinion, most unphilosophically it seems to us, to guard the body politic against its spread. Certain prudent families that we have known to be attacked with cholera, have been so observant of abstaining from vegetables and fruits, as not to eat any for many weeks prior to cholera breaking out, thus, no doubt aggravating the epidemic by inlaying a scorbutic taint.

Our views, then, of the scorbutic diathesis underlying cholera, explain many of the phenomena seen in the disease, but considered heretofore very occult, even mysterious; as for example, how, or why it is, that certain families all die off with cholera, while their neighbors exposed to the same atmospheric influences, but not the same diet, all escape attack; why immigrants, one half of whom are doubtless scorbutic on landing, are the peculiar delight of the disease; why it breaks out at sea in emigrant ships, occasioning such mortality; why it follows armies, appears in camps, and besieged cities; why its supposed birth-place is burning India, where rice is the one article of food of the poor; and why it revels in the snows of St. Petersburg, where the serfs feed on train oil. We might pursue the thought still farther, in explanation of the vernal appearance of the disease, after cold winters, retarded springs and short crops; its lying dormant in the city of New York from autumn till spring, while at the quarantine hospital, under a routine dietary, it found subjects even in autumn; indeed, there is hardly one of its strange vagaries that is not elucidated by the view here taken of it, to wit: that the scorbutic diathesis underlies it; and gives the chief sting, in fact, to all our epidemic forms of diseases—explains why they are so mortal during certain years.

We plead guilty, however, of great dullness and tardiness in discerning the all-pervading evil influence of the faulty dietary of a city or country in producing disease; and of narrow mindedness or professional bigotry in forever localizing the scorbutic taint; but so we had been taught—taught that scorbutus was one disease. The views here presented have

come little by little from patient observations made at the bed-side, through a cycle of nearly twenty years; they have been forced upon us by truths too obvious to deny; we have been obstinate and unyielding in our adherence to the dogmas of the schools until every prop has been cut from under us by repeated multiplied evidences that it is to an erroneous dietary, inlaying scorbutus, and not to "occult qualities of the air," as has been taught since the days of Sydenham and long before, that we are to look for the cause of pestilence and the desolating mortality of the epidemic diseases of certain years. Our eyes are at last opened to a comprehensive vision of the certain and inevitable power for evil of the impoverished dietary of a people or nation, during years of blight and scarcity of vegetable food and fruits, and we now understand the reason why epidemics have, in those years, such uncontrollable sway. We speak of any epidemic form of disease whatever, not of cholera in particular. Our observations have been general, and our conclusions are general. Our opportunities for observation have been ten to one greater in the bilious fever epidemics than any other; which we have observed to *invariably* break out with violence after cold, wet seasons, droughts, frosts, and blights; after the whole community were laid under the putrid influences of scorbutus. But we have observed too, that the out-breaks and aggravation of small pox, measles, and scarlatina, were also coincident with disastrous years, when whole families were displaying unmistakable evidences of the scorbutic taint. We are satisfied, therefore, that the scorbutic diathesis is the great and hidden element of *aggravation*, if not the *ultimate cause* of these epidemic forms of disease also, as well as of bilious fever, cholera, and cholera infantum; startling, innovating, or "*alarming*" as the view may appear, and as it has been expressed to us. It explains the origin of the *first cases*; and these diseases are re-appearing *de novo* during every pestilential period.

We confess to have been dull, however, in practice, compared with what this revision of our pilgrimage at the bed-side calls for. We were bound hand and foot, handcuffed and fettered by nosology all the way. Notwithstanding, we saw scorbutus all the time, we were forever localizing it, and con-

sidering it one form of disease among many, as we regarded a fever, or the inflammations—for this is the doctrine of the schools—and of course we overlooked it as the *foundation* of the ailments we treated in innumerable instances. Were we to retrace our foot-steps, we know not now where our antiscorbutic treatment would not be instituted, for the taint looms in the distance, and appears to us in these reminiscences as a ubiquitous affair, a sort of ORIGINAL SIN contaminating the whole people. We are now of the opinion that the surest method for escaping cholera, or any other epidemic disease, lies in the prior and continued observance of a judicious antiscorbutic regimen, or an omnivorous dietary of meats, vegetables and fruits, and regular exercise—conforming to nature's laws.

CORROBORATIVE EVIDENCES OF THE PREVALENCE OF SCURVY.

Our observations as to the prevalence of scurvy are fully confirmed by the observations of other physicians who have contributed their testimony to the medical journals, and which we take leave to transfer, or such extracts at least, as set the matter at rest. These extracts show that scorbutus is an insidious, pervading, but overlooked essential element of disease, in the United States; that it broke out in the Ohio Penitentiary in 1835, the year of our first noticing it in Illinois; and that it prevailed in and out of the Commercial Hospital, Cincinnati, during the prevalence of cholera in 1850, whilst we noticed its presence at Chicago. Furthermore, it has prevailed in sundry places epidemically in Europe within the period of our observations, and has broken out in sundry hospitals and prisons. Several valuable papers have been written on the subject by eminent observers of these epidemics, giving a minute account of the disease as it appeared in different places. These monographs constitute valuable contributions to medical science. We shall refer in another connection to these articles as throwing additional light on scorbutus beyond what the records of former days have left. The truth is, the old fashioned, chronic form of the disease has been so hushed in modern times—almost ban-

ished both from sea and land—that there are many physicians, now grown old in the duties of the profession, who have never seen a case of scurvy, so they say, or if they have encountered it, did not know it. This is believed to be the reason why the nursing sore mouth affection has not been understood and its true nature long since revealed.

DR. HOLMES' PAPER ON MASKED SCORBUTUS.—The St. Louis Medical and Surgical Journal for March, 1848, vol. V. No. V. p. 417., contains an article entitled, "*Some remarks on Scurvy*:" by R. S. HOLMES, M. D., of St. Louis, late of the *United States Army*," which especially corroborates our views. Dr. Holmes, says,

"My attention was particularly called to this disease, by many well marked, yet rather anomalous cases of it, that I witnessed with the army in Florida. I have seen it elsewhere since then, throughout the United States, and in Mexico, and I am convinced it is often overlooked or not suspected; that the names of other diseases had been given to it, [undoubtedly] and that from its diversified character, it defies all attempts at a complete history of its symptoms. [Even so.] The only well-marked proof that many diseases I have seen, have been affected by the scorbutic constitution of the fluids, has been in the *cure*; [yea verily], if an inflamed eye, or an ulcerated leg, is cured by a drink of acids and a diet of vegetables, when the patient, for some time previously, has been living on salt provisions, and without vegetables, it affords presumptive proof that the disease is of a scorbutic origin. [Proof positive, rather].

"Scurvy stamps its impress on diseases very much in the manner that malaria [a word cloaking our ignorance] is in the habit of doing. [Mark this, reader]. There is no disease that is not capable of taking on a scorbutic character [the cart is here put before the horse]—as far as I have had an opportunity of judging—even although the accredited symptoms of scorbutus itself may not be present, [mark this]: nay, I believe there is scarcely an individual among the many who escape when exposed to scorbutic causes, who has not within him the *leaven* [mark the emphatic expression] of the disease, capable of giving signs of its presence, if not by absolute symptoms,

still by the stamp of the scorbutic diathesis *on* any other disease to which the system may be liable. [Rather, it should be said *under* any disease, for the diseases are the *epiphenomena*, according to Dr. Barnes of the London Hospital, and as we think].

"It is a great error to suppose that, in all cases of scurvy the gums are affected, [unquestionably it is] or that the patient is depressed in spirits, or that he has a peculiarly sallow look, or that he looses his strength, or has livid colored patches, as if of extravasated blood beneath the skin; these may all be present, or not one of them, and yet the patient will have scurvy. [Often dies of it before these later symptoms are developed]. How then, it may be asked, do you recognize the disease? we answer, by the certain causes that are known to produce it, and by the readiness with which acids or vegetables act favorably. * * * *

A very universal sign of the disease in Florida was, the superficial extended ulcerations or bullæ, giving rise afterwards to suppuration. * * * I have had patients for three months on the sick report, with this inflammation, when the cure was probable, brought about at the end of that time, by the antiscorbutic diet that was habitually used in the Hospital, as far at least as circumstances would permit: yet afterwards [when it was understood to be scorbutus] I was in the habit of curing these inflammations in a few day's time by drinks of lemonade, [just so] or what is better, I think, by a mixture of vinegar and the nitrate of potash, [potash again] in as large doses as the stomach will bear; and by a diet of potatos, and if you please, salt beef or pork also [common salt is a most valuable antiscorbutic]; for it is not the *presence* of these articles, but the *absence* of acid vegetables that produces scurvy. * * * Another one of the most common forms of disease, in which scurvy betrayed itself, was in the inflammation of the conjunctiva, or lids of the eye. I am not certain that this disease was of a scorbutic origin, but certainly no sooner would such an inflammation set in, than it was seized upon and overshadowed by the scorbutic diathesis, and I am much inclined to believe that this inflammation was caused by the seeds of the scurvy in the

system. [You have it sir]. Ulceration of the cornea was another very common form of disease of the eye, in which this diathesis played the chief part. [If not the whole].

"Soldiers subject to the phlegmasiæ, and also to a scorbutic diathesis were among our most frequent patients in Florida: the relapses were so frequent that such men were hardly ever out of the hospital. [Relapse is a law of scurvy]. By the aid of a proper diet, we could easily accomplish a cure for the time being, but the disease would return in a week or ten days after the diet, peculiar to the troops was used. [Exactly so].

"I wish to call the attention of your readers to this disease, for I am convinced it is a much more common one in the country than is generally supposed. [Yes indeed]. It is a great error to believe that because one lives out of a town, that fresh vegetables can be procured; the country, as far as my experience goes, is often the most difficult place to get them. [Hear]. Potatoes could never be had at most of our frontier posts, were they not cultivated by the soldiers themselves, and preserved during the winter; and it is quite a source of profit to the soldiers to sell their extra supply to the country people around for their own consumption; they are the great prophylactics in scurvy, and generally the only vegetable used during nine months of the year, in the northern parts of the United States. But the supply in new settlements is often very limited, [hear] while in the lumber regions of Maine, New York, on the head waters of the Mississippi, and in the mining districts of Illinois, Wisconsin and Iowa, the workmen are deprived of any vegetables whatever for many months of the year; [hear] their diet consists of pork, beans, hard bread and coffee. [What we have so often repeated]. No conception can be formed by any one who has not been much in the untrodden ways of the country, of the extent to which salt pork is used, [hear] not that it produces scurvy, but the facts are, that where it is much used, vegetables are not, for the simple reason that they cannot be procured." * * *

Remarks.—Dr. Holmes, it appears, had but recently left the army at the date of his article. He speaks of having examined a recruit at Fort Snelling a few months previously,

and passed him, though he had a slight ulceration of the cornea. He tried to heal that ulcer for two months, at which time it was worse than when he commenced. The man had been working in the lead mines. This explained the case. He was put under antiscorbutics and in two weeks was well; proof positive that it was scurvy.

The testimony of Dr. Holmes is most valuable. It proves the great prevalence of the scorbutic diathesis; its Protean character; its masked symptoms; hidden implantation in the the system without any signs, or any that are generally noticed; its universal or "*malaria-like*" impress, and the negative proof of treatment often the only proof of its presence. His testimony also to the scarcity of vegetables in the new settlements of the western country is very important. Had Dr. Holmes been engaged in general practice, the nursing sore mouth form of scorbutus would not have escaped his penetrating eye, it is believed. We make no apology for extracting so liberally from Dr. Holmes' paper, it being to our purpose exactly; for it is our intention to compass this question fully, and settle the matter, if possible, beyond a question by this inquiry, as to the nature of the nursing sore mouth affection.

DR. DAWSON'S PAPER ON SCURVY IN THE COMMERCIAL HOSPITAL, CINCINNATI.—In the *Western Lancet* for Dec. 1850, vol. XI, No. XII. page 759, is an article entitled, "*Scurvy as it appeared in the Commercial Hospital during the summer of 1850: By W. W. DAWSON, M. D., Resident Physician;*" which establishes the fact of the prevalence of scurvy in Cincinnati, simultaneously with our observations of its prevalence at Chicago during the raging of epidemic cholera there. The cholera was also raging in Cincinnati at the same time. Dr. Dawson says:

* * * "The first case which occurred was in the lunatic department, in an old simple woman who spent her time alternately between this department and the poor-house. * * *

"Upon examination of the house, to see to what extent it was prevailing, thirty-two cases were found. Twenty-nine of them were in the lunatic department, fourteen males and fifteen females. Two cases occurred in the eye department of

the surgical ward, and one was admitted into the house on the 18th of July, who had been affected for five weeks.

* * * * *

"It would hardly be expected that these persons would be thus afflicted when I detail their bill of fare. They had boiled rice twice a week, boiled hominy three times, salt beef and pork twice, fresh meat five times, bean soup once, and beef soup with cabbage boiled in it, six times. Bread and coffee for breakfast, and bread, butter and tea for supper. [Only one succulent vegetable, cabbage, and probably very little of that in the soup]. During the winter and up to the first of April they had boiled potatoes once a day and a liberal amount of cabbage. This last was continued during the summer, and whilst living upon these articles they contracted the disease. * * * * *

"The remedies were more dietetical than medicinal. A liberal amount of boiled potatoes was added to the bill of fare, and a drink composed of water acidulated with citric acid, and sweetened with white sugar so as to be agreeable to the taste, and mild aperients to keep the bowels open constituted the treatment. Improvement began, in most of the cases, in from three to five days, and at the end of three weeks it had entirely disappeared from the house."

Remarks.—The symptoms of these cases have not been copied, the object of the quotation being to show to what extent the scurvy was observed in Cincinnati coincident with our observations at Chicago, during the raging of epidemic cholera. The case admitted into the hospital from the city, 18th July, for five weeks affected, proves that the scurvy was prevailing in Cincinnati out of the hospital at that time, and at the same time the cholera was epidemic in the city. The absence of potatoes from the dietary during the summer was doubtless the cause of the outbreak of the disease in the institution.

Nothing is said of the cholera cases that occurred in the hospital, which were doubtless numerous. Only the chronic form of scurvy is held to be scurvy now-a-days. And why if cholera is scurvy, did not all the chronic cases of scurvy take on a serous hemorrhage, from the stomach and

bowels and go into cholera? Such questions as this are often put to us as *posers*. We will answer by asking why malarious fever has three or four common forms, and as many more common types, to say nothing of the thousand and one *masked* forms and types as they are considered? Can any miasmatist answer this? No: we may wait till doomsday for a satisfactory answer through the malarial hypothesis. A poison received into the system produces uniform results—this is the science of toxicology. But who is wise enough to say what will be the symptoms, pains, aches, distresses, and varied phenomena in a community of men, women and children rich and poor, bond and free, prudent and reckless, drunk and sober, etc., under partial starvation; under want for a long time of the vital stimulus of wholesome food? no one. They will be varied by age, sex, habits, complexion, constitution, organization, condition, clothing, place of living, place of sleeping, occupation, exercise, sloth, laziness, over-exertion, fear, cowardice, irresolution, melancholy, surrounding friends, surrounding comforts or otherwise, general climate, local climates, season of the year, state of weather, changes of the weather, changes of the moon even, stage and degree of the scorbutic taint, and a thousand other things easier imagined than said, but which we know to be operative in shaping the epiphenomena of disease, after the foundation is laid. This explains the whole matter; or if it does not:

Again, when one variety of scurvy has shaped its course, or has had it shaped by inherent and surrounding circumstances, as above, it does not often change into another variety; this is the *rule*: but sometimes it does, and these are the *exceptions*. The old authors say this, and so say the late writers since the Irish famine who describe five varieties of recognized, well marked scurvy. But when we, who have entered on the last half of the nineteenth century, see malarious fever change to typhus, scarlet fever to measles, cholera to dysentery, and dysentery to scorbutus we record the facts with amazement, so uniform are the fashions of disease when once shaped—the phenomena, or rather the “epiphenomena,” upon which we have been accustomed to look and to *call* diseases, without “ascending to the primary pathological condition.”

DR. WRIGHT'S PAPER ON SCURVY IN THE OHIO PENITENTIARY, IN 1835.—In Vol. 1. No. 1. of the "Western Quarterly Journal," for June, 1837, is an article entitled, "*Remarks on Scurvy as it appeared in the Ohio Penitentiary in the year 1835.* By M. B. WRIGHT, M. D., of Columbus, Ohio." (Now of Cincinnati). This paper corroborates our observations of the scarcity of vegetables in 1835, and the prevalence of scurvy. Dr. Wright says,

"In the winter of 1835, the scurvy appeared among the convicts of the Ohio Penitentiary. It continued under various modifications throughout the summer, and occasionally exhibited its peculiarities during the autumn. * * * *

"As is well remembered there was a great scarcity of vegetables during the winter in which the disease under consideration unfolded itself, and it was difficult to procure the needful winter supplies for the prison. The diet, therefore, mainly consisted of bread and meat. Potatos, as purchases could be made, were sparingly used. * * * *

"It will be perceived that the disease was insidious in its approach, and secret in the plan of its operations until brought to light by accidental circumstances. * * *

"Nothing was so beneficial as the solution of nitre in vinegar—Nit. potass, ʒiv, vinegar, lqt., of which a table spoonful was given every two or three hours."

Remarks.—Dr. Wright's paper, as we have said, confirms our report of the short state of the vegetable supplies in the winter and spring of 1835, and the prevalence of the scorbutic diathesis. The breaking out of the scurvy in the Ohio Penitentiary is ascribed to a deficiency of vegetable food. If "difficult to procure the needful winter supplies for the prison," the vegetable dietary of the regions round about Columbus must have been abridged. Perhaps the blighting causes that abridged the crops in Illinois were felt throughout Ohio, Indiana, Missouri, and other States in the Mississippi valley, and if so, and our observations of a severe bilious fever epidemic in the summer of 1835 should be confirmed as an effect thus extensive, our views of the cause of the summer epidemic will be greatly strengthened. This is within the remembrance of thousands of practitioners, if not on record in the

journals, and will be recurred to. If the principle shall come to be admitted that the scorbutic diathesis is the cause of much of the sickness of the newly settled States, humanity is deeply concerned in the Inquiry before us, and the principle will become a future element in sanatory surveys and regulations for guarding the public hygiene.

TREATMENT AND PREVENTION OF NURSING SORE MOUTH.—

If the reader will but recur back to the treatment of Dr. Hale, who first described this anomalous affection, he will perceive that his main remedies were our best antiscorbutics, to wit: bicarbonate of potash and lemon-juice in the form of effervescing draughts, acidulated beer, porter, with nourishing diet, and tonics. It is impossible for us, *wittingly*, and will puzzle practitioners, now they are fully advised of the scorbutic nature of this affection, to prescribe any better remedies. Quinine in small doses is probably the best tonic.

Drs. McGugin, Holt, and others speak of the hydriodate of potash as almost a specific, in this affection, and no doubt it may be a good remedy; but the carbonates, and citrates, and tartrates, of potash and soda, are very much better.

Dr. Taylor commends the cream of tartar as a specific, (tartrate of potash) and it doubtless is a much better remedy than the hydriodate of potash. The nitrate of potash, has been found a valuable remedy in scurvy, but does not appear to have been empirically hit upon by any in the treatment of the nursing sore mouth affection.

Dr. Judkins begins the treatment with bicarbonate of soda, by the teaspoonful, almost, dissolved in water and drank freely of, several times a day, to correct, as he says, the acid and acrid state of the secretions of the stomach and bowels. The reputation Dr. Judkins enjoys for success in the treatment of this affection depends to some extent, no doubt, upon the antiscorbutic virtues of this salt of soda.

With these facts before the reader, and the treatment detailed in the cases (See case No. 1.) of the nursing sore mouth affection we have reported in this essay, little room is left for any further hints in this place on the treatment of the *nursing sore mouth*, which we presume our readers, one and all, now consider the same disease as scurvy.

The prevention of the nursing sore mouth, calls for a few additional remarks. It is common for breeding women to be affected with "morning sickness," to have longings and cravings, and in the latter months to be troubled greatly with heart-burn or sour stomach when the womb rises up so as to press upon that organ. These phenomena show an interference with the digestive function, and explain how it is that, breeding and pregnant women are rendered so liable to attacks of this affection. During lactation, again, there is so heavy a drain upon the system from nursing an infant, that this circumstance coöperating with defective alimentation and imperfect assimilation, is very apt to develop it. Delicate women cannot withstand the combined influences of sedentary habits, the morbid effects of pregnancy on the digestive functions, and lactation during the spring months when there is an interregnum of vegetables—they inevitably become more or less scorbutic. We have seen the most lovely specimens of the sex destroyed by nothing in the world but *restrictions in diet* during the first pregnancy, and we have known two physicians' wives victimized by the same mistaken policy, during their child-bearing period in Illinois. The very fact that the blood of pregnant women always presents a buffy coat, shows there is an increase of fibrin, or tendency to scorbutus, and that they should have plenty of sour punch rather than suffer venæ sections; and that they should be ordered to have acid drinks, and beef, potatoes, turnips, cabbage, and other substantial food, rather than physic. If succulent food runs into fermentation, let this be corrected by a draught of soda. It is both antiscorbutic and palliative. As much exercise in the open air as can possibly be indulged in, and the suitable use of tea as a beverage and even wine to prevent anxiety of mind, despondency, forebodings, and depression of spirits, will be found good prophylactics against this insidious affection. The daily use of about a tablespoonful of Stoughton's bitters, with attention to vegetable diet, has carried several women under our care through pregnancy and lactation free from an attack of this affection, who had been its regular subjects before. We lay but little stress or value upon the bitters, and yet the stomach does its duty better with, than with

out it. We have also found the citrate of iron and quinine in solution a most valuable antiscorbutic tonic, and prophylactic against nursing sore mouth. In the malarious regions of Illinois, where we have encountered this disease so much and oft, where palor and anæmia are almost a matter of course with child-bearing women, this remedy and preventive answered the indications fully. We do not think it necessary to advise weaning or the suppression of lactation as a preventive measure, even in those women who have suffered an attack with every infant born, unless there be a complication of difficulties, and the necessity is then to be judged of by the attending physician. Where the digestive organs are able to perform their duty, and our directions are carried out in regard to diet, exercise, and adjuvant stomachics, no woman need wean her infant either as a preventive or curative measure.

CONCLUSION.—It was our original purpose in the preparation of this paper to add a chapter on the scorbutic diathesis, indeed such chapter was prepared, to serve for comparing the symptoms of nursing sore mouth with those of scurvy. For it is only by carefully studying the phenomena presented in scurvy, and then comparing them with the symptoms of the nursing sore mouth affection, that just conclusions can be drawn as to the identity of the supposed two diseases.

Our researches, however, having led to the discovery of the cause of cholera and cholera infantum, and having prepared and published essays on those subjects, we found it necessary to amplify our sketch of scorbutus and show its relations to those anomalous affections as well as to nursing sore mouth. This arrangement, of course, throws the subject of scurvy into a separate essay, and connects the whole series. We fully agree with the older writers, that the poisoned condition of the system known as the *scorbutic diathesis* is the source of a large class of diseases; and we expect to make this matter clear, by the light that physiology and chemistry have shed since the days of Sydenham, that master spirit of his time who did more than any other physician, doubtless, to hoodwink the profession on the above great truth, and

establish the position he contended for, viz.: that *scurvy* was but one distinct and uniform disease; an error that remains to this day. We can show his reasoning, now, to be fallacious, and shall do so in the proper place.

Whoever will examine the article on scorbutus in the Cyclopaedia of Practical Medicine, will find that the word *scurvy* comes from the Saxon noun *scurf*, signifying exfoliations from the skin; a dry, scurvy state of the skin being a symptom, and which is also a symptom of the nursing sore mouth. The term is therefore found to be of modern origin. When it received this name among the northern nations of Europe, it was believed to be a new disease, as the nursing sore mouth is now. Although Hippocrates is said to have described the symptoms and pathological condition under the head of diseases of the spleen, and also in his *Convolvulus Sanguineus* (op. cit). still the name is, as the disease is *supposed* to be, of modern date; and Lind and others therefore contend that Hippocrates knew nothing about scurvy.

The term *scorbutus* is said to be of Dutch origin, a Dutch word metamorphosed into Latin; *scorbeck* in Dutch meaning *sore mouth*; another prominent symptom! Lind thinks it may have come from a Danish word, *schorbock*, which means *the gripes*; another prominent symptom! Now here are three of the *diagnostic* symptoms of *nursing sore mouth*, giving origin to the very nomenclature of *scurvy*, and yet the profession has not discerned their identity!

The term *stomacace* used by the Roman physicians in describing the disease, (op. cit). comes from the Greek, and means also *sore mouth*! from which we have *stomatitis*, inflamed or ulcerated mouth; and *stomatitis materna*, and *stomatitis nutricum*, are terms used by some as the most proper appellation for the *nursing sore mouth*; innocent, however of the scorbutic meaning!

With the mere recital of these facts we close this lengthy inquiry, leaving the reader to decide whether or not our conclusions are correct. Entering more at length into the history of scorbutus in this essay, does not now comport with our arrangement; but from this point we naturally glide into a more elaborate discussion of the subject in our next essay.

BLIGHTS AND CHOLERA IN BARBADOS.—All our readers, doubtless, remember the ravages of cholera in the West India Islands in 1854, and its very great mortality in Barbados. We have ascertained authentically that blights in vegetation, dearth and scarcity of succulent food and fruits were its heralds. Dr. Wm. H. Freeman of this city [Philadelphia] resided three years in Bridgetown the metropolis of Barbados. On the breaking out of cholera, in June 1854, he volunteered his services to the authorities of the island, and practiced, without hope of reward, through the epidemic, to his praise be it said; and it is but justice to add was one of the volunteers to the scourged city of Norfolk in the summer of 1855. The doctor endorses our views of the cause and nature of cholera, and says they are sustained by the phenomena that attended the outbreak and spread of it in Barbados. There was, he says, a succession of blights in the island. The yams, eddoes, sweet potatoes and fruits usually grown there failed in consequence of droughts; the reservoirs of water became low, stagnant and corrupt; imported vegetables and fruits were high in price and noxious in quality or condition, and the poor were necessarily thrown upon a diet of salted meats and fish with bread—molasses and water to wash it down and fill up. Many of the imported supplies were condemned, and sold, and thus became the tainted and corrupted food of the poor. The doctor says he predicted the outbreak of cholera there, months before it occurred. He says furthermore, that he noticed the evidences of the scorbutic diathesis, in numerous instances in which injuries, wounds, and ulcers, refused to heal. One case of ulceration from a mosquito bite on the penis ended in death! This explains phagedenic venereal ulcerations.

LETTER FROM DR. BYINGTON.—PROF. KNAFF.—DEAR SIR:—I have read your essays on the nature, cause, cure, and prevention, of epidemic cholera and cholera infantum with much profit. The facts and arguments therein set forth seemed so clear and conclusive to my mind, I determined to test their value in practice. I have observed the signs of the scorbutic diathesis in many cases of chronic affections of the alimentary canal, which had resisted the usual mode of treatment; but by pursuing the course recommended by you, have been agreeably surprised at the prompt improvement. I have thus successfully treated a number of cases of cholera infantum, existing under very unfavorable circumstances, viz.: premature weaning; in fact in all affections falling under my care, if I can discover the scorbutic groundwork, as described by you, I administer antiscorbutic remedies, and order vegetable diet as far as consistent with peculiarities of the case, and generally with success. I find, since my attention has been called to the matter, by inquiring into the kind of food usually taken by a large portion of the inhabitants of this city (and doubtless it is much the same in other cities) that bread, butter, tea, coffee, and a moderate amount of meats, constitute the staple of their diet; succulent vegetables not being considered an essential element of their daily food, particularly among the delicate, with feeble appetite; hence the condition of system described by you is doubtless much more common than might have been imagined, and probably determines the particular type of many of our diseases. It seems to me that I can now understand why those affections characterized by general debility and relaxed condition of the various tissues, resisted the usual tonic treatment, with bitters, iron, etc., for I have seen the same cases under the acid, quinine and brandy treatment, assume a new and vigorous vital activity. I am so far highly pleased with the results following your suggestions; but whether or not future experience will corroborate your theory to the extent advocated by yourself, can, of course be proved only by experience and observation. I trust however, you will be fully borne out in every particular; and cheerfully will I contribute my humble efforts to investigate a principle, which, if correct, will result in immense good to our fellow men.

Philadelphia, Nov. 2, 1856.

W. C. BYINGTON.
135 Spring Garden Street.



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